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Foreword 1926

AT the beginning of the new year, and the commencement of a new volume, the Editor desires to thank all those who have contributed to the pages of the *Journal* during the past twelve-month by papers, essays, abstracts, and clinical reports. It has been the earnest endeavour of the Editor to make the *Journal* a worthy exponent of the activities and observations of the profession in Canada, and entering upon a new year he desires to acknowledge the valuable assistance towards attaining this purpose, received from the Editorial Boards in each province, and from many willing contributors scattered throughout the Dominion. Without such help his own efforts would have proved a failure.

Relying on a continuation of this much appreciated assistance, the Editor looks forward with confidence to the new year, and trusts that as each year passes the *Journal* may become more valuable, and more efficiently present to its readers original papers embodying new facts and thoughts of practical value and abstracts of the more notable advances in all departments of medicine throughout the world.

The Editor desires again to emphasize the fact that for the past fifteen years the *Journal* has been the property of the *Canadian Medical Association* and is in no way a private or provincial venture. Every member of the Association throughout the Dominion has, therefore, an interest in its success. It is important that provincial and local societies in Canada should not lose sight of this fact.

Selected papers presenting concisely, new thoughts or facts of interest or value to the profession, whether gleaned at the bedside or in the laboratory will always be welcomed, and correspondence on matters affecting the profession, not too personal, too lengthy, or too controversial, will be accepted for publication. The Editor will also be glad to receive papers which while not strictly medical, are of interest from a literary point of view.

Many valuable papers on subjects of importance have already been promised and will appear shortly. No effort will be spared to ensure that every number shall have papers of value and interest, that will render the *Journal* a credit to Canada and the Canadian profession.

An Address

ON

PREVENTIVE MEDICINE*

C. F. MARTIN, M.D.

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SOME years ago, by a coincidence fortunate for the whole world, a certain young student was found reading a text-book written by a graduate of "Old McGill." The man who looked over his shoulder at the time happened to be adviser to the greatest philanthropist of all time. His interest in the book was aroused by the student's enthusiasm, so, borrowing the volume himself, he was lost to the office for several days. Fully persuaded by the reading of the book that it opened up limitless possibilities for inestimable benefit to mankind, he returned to the office, with the great medical classic in his hand, and, approaching the philanthropist, said with intense fervour and unreserve:-"All your philanthropies until now are nothing as compared with the opportunities still before you." The philanthropist, deeply moved, "grasped the skirts of happy chance," and forthwith entered upon a new career in his chosen field.

The book was Osler's "Practice of Medicine;" the philanthropist was John D. Rockefeller: the noble outcome of the incident was the worldrenowned "Rockefeller Foundation," the greatest practical and most beneficent project of all time for the education of mankind, for the cooperative study of human ills and for the relief and cure of

millions of suffering human beings.

No time could have been more opportune. The momentous nineteenth century had initiated the conquest of science over phantasy and dogma; desiccated theories of disease were being discarded for those proven by the cold facts of scientific investigation. Progress in the field of medicine had advanced to such a degree that the opening

of the twentieth century left one intellectually giddy in an effort to grasp the full significance of the change. The advances have been far too rapid for us to appreciate, and we who have grown up with them, have little conception of their real importance.

Diseases that were common in our youth have disappeared from the face of the globe; others have lost their terrors, for their prevention has been clearly foreseen. The improvement in mortality rates, and the lengthening of human life bear ample testimony to the change.

These advances, important as they have been and affording increasing evidence of the great possibilities for the human race, needed something more for their development, viz., the segregation of a band of workers, administrators, organizers and scientists, whose combined efforts would make all these things possible. This the Rockefeller Foundation is accomplishing; to-day there exists an organization with the necessary funds, with far-sighted administrators and leaders in all branches of medical science—a coöperative force which has far-reaching interests-to promote the further spread of education, to constitute an international health bureau, to forward the claims of public health, and with the greatest possible scope, to improve the conditions of life throughout the world. This, more than any other factor, has contributed to the development of preventive medicine. One has only to look at a map of the world in which their activities are dotted to see how widespread are their operations, for there is practically no country in which their efforts have not extended into both university and community life.

In a desultory way, up to a decade or two ago,

^{*}Address to the Medical Undergraduate Society, McGill University, October, 1925.

individuals, institutions and states had recognized these things. Indeed, the idea of public health and preventive medicine dates back to a remote antiquity. The evolution and significance of the modern health campaign have been admirably portrayed by Professor Winslow, of Yale, whose book on the subject I can heartily recommend to every senior student. He points out that in Greece, long before the Christian era, personal hygiene—like Art—had been so highly developed in scope and degree of excellence as has never been approached since. With physical exercise and dietetics as auxiliary to the prevention of bodily ills, the physician of those days found a healthy rival in the professional gymnast.

In Rome, in 500 B.C., public sanitation was an outstanding feature of State enactments, but with the downfall of the empire and the advent of the dark ages, reaction set in, and neglect of the body became almost a fetish. Isolation and quarantine during epidemics alone remained.

History shows few more glaring examples of the inefficacy of such national example than this neglect of public health. In England, it is true, sporadic and isolated efforts at reform were taking place, but as late as 1858 one reads that—"India is in revolt and the Thames stinks"—two facts which, when coupled together as Budd wrote, mark the climax of national humiliation.

Even in the great American metropolis, as late as 1865, the official report went out with such sentences as these:—

"Domestic garbage and filth of every kind is thrown into the streets, covering their surface, filling the gutters, obstructing the sewer culverts, and sending forth perennial emanations which must generate pestiferous disease. Filth and parbage accumulate to a depth of 2—3 feet."

Two things, says Winslow, contributed to the great sanitary awakening—a development of the scientific spirit and the growth of the new motive of humanitarianism.

The outstanding features of these great developments can be merely cited here:—

Jenner's discovery of vaccination in 1798 the most conspicuous and complete experimental achievement of all time and "none ever introduced which has proved a greater boon to the human race."

Then came the campaign of prison reform by John Howard in 1774, which Winslow describes

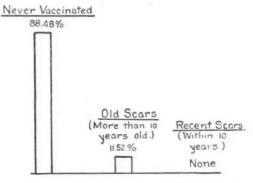
as the first phase of the humanitarian movement. Following upon this, in England—and it is well to know that to England we may turn as the pioneer of the great sanitary awakening-came the many public measures which gradually focussed the attention of the world on the need of better community health. Sanitary laws were enacted, and the health of city and state was made the subject of much legislation. Science had made its conquest of individual disease, and bacteriology, immunology, vaccine and serum therapy have completed a series of observations initiated by the epoch-making investigations of one single man-Pasteur, who, during his own lifetime, enjoyed the unique privilege of seeing his efforts bear fruit.

A few slides will show what has been done on behalf of prevention and cure in these few decades since the days of Pasteur in France, of Lister in England, and the group of workers directly stimulated by their great achievements. I am indebted to Dr. A. Grant Fleming, Director of the Montreal Anti-tuberculosis and General Health League, for many of these illustrations and charts.

But first let us take the results of Jenner's work done so many years before. It has been estimated by a distinguished scientist that during the eighteenth century, prior to the coming of Jenner, 15,000,000 people died of smallpox in twenty-five years. And now, in our own lifetime, see what has been accomplished!

CHART A
SMALLPOX
DETROIT-1924
Deaths-163

Past Vaccination History of Deaths



It was my good fortune to be a pupil in the Pasteur Institute when it made its wonderful contribution to humanity through discovery of the diphtheria antitoxin. The results of that epochmaking discovery are well shown in Table I.

TABLE I DIPHTHERIA MORTALITY

PHILADELPHIA

Mortality Rate per 100,000

1891	127.4	5 Year Period
1892		
1893	103.9	Before Use
	122.5	
	115.9	of Antitoxin

Mortality Rate per 100,000

1906	5 Year Period
1907 34.60	
1908	Antitoxin in
1909	
1910 31.7	General Use

Or, again, in the case of typhoid fever-and here I will show you the results in most striking fashion by illustrating the well-kept records in war time:-

TABLE II TYPHOID FEVER

VALUE OF TYPHOID VACCINE

War	Average Strength of Troops	Number of Cases	Inci- dence	No. of Deaths	Case Mor- tality
South Africa (1899– 1902)	209,404	59,750	28.5%	8,227	13.8%
Great War (1914– 1918) Al Areas	1 2,000,000	20,149	1.0%	1,191	5.9%
French Front (1915- 1918)	1,568,675	6,519	0.4%	213	3.3%

Perhaps in civilized countries the three greatest preventable scourges of modern times are malaria, tuberculosis and diarrhœal diseases of infancy. Tables III and IV and Chart "B" indicate results obtained so far.

TABLE III

DEATH RATE PER 100,000 FROM MALARIA EXPERIENCE OF FIFTY-ONE SOUTHERN AND SOUTH-WESTERN CITIES—1911 TO 1920

Year													Death Rate per 100,000
1911.	 												14.1
1914.													
1918.		٠								۰			6.2
1920.													

Percentage, uniform annual dec-	
rement of average death rate	
of period 1911 to 1920	14.0

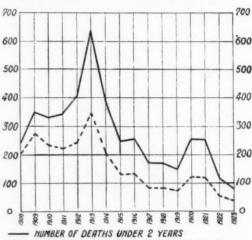
TABLE IV

DEATH RATE PER 100,000 FROM TUBERCULOSIS CITY OF TORONTO

Year	Death Rate per 100,000
1913	105
1916	
1919	85
1921	66
In England the death rate per 1,000,000 in 1847 amounted to In 1921 it amounted to	3,181 853

CHART B

DIARRHOEA AND ENTERITIS



---- RATE PER 10.000 CHILDREN UNDER 2 YEARS

In contrast, I will give two illustrations presenting the conditions where diseases exist for which no adequate public measures are adoptedheart disease and cancer, and you will observe that our mortality rates are practically unchanged.

TABLE V

DEATHS PER MILLION FROM CANCER IN ENGLAND AND WALES

1847-1850.										274
1866-1870.				۰				٠	٠	403
1891-1895.				ø		0		۰		711
1911-1915.		٠					٠	٠	٠	1,054
-1923.		۰	۰		0		۰	0		1,267

DEATHS PER 100,000 FROM ORGANIC HEART DISEASE CITY OF TORONTO

~	•	,	0		-	,,	,		10	
1913.										96
1916.										78
1919.								0		82
1922.										99

The importance of adequate expenditure by the state is scarcely realized, though to the expert it is obvious that where public authorities are willing to spend money, far-reaching beneficent results may ensue.

Let us in this respect contrast Montreal and Toronto:-

TA	DI	373	VI

T 1' D 1 1' IT 1/1 1	Toronto	Montreal
Expenditure on Public Health by by City Health Department	\$835,000 or \$1.60 per capita	\$272,000 or \$0.42 per capita
General Death Rate per 1,000.	11.4	15.6
Tuberculous Death Rate per 1,000	65.0	152.5
Typhoid Fever, total deaths Infant deaths, per 1,000 live	13	47
births	71.0	148.9
Diarrhœa and Enteritis, total deaths under two years	87	1,249
There are 4.2 less persons die	e per 1.000 o	f population

in Toronto.

If Montreal's population is 600,000, there would be a saving of 2,520 lives yearly if the rate were lowered to the Toronto level.

It is obvious, then, that through the beneficence of those who have stimulated the cause of medical education and inspired countries to deal with disease along the lines of prevention, an inestimable blessing has been conferred on millions of homes, and in even wider circles, the gospel is being preached.

Hence it is but natural that those interested in medical education should realize the problem facing them of the relation of medicine to society and of society to medicine. The duties of a Medical School reach far beyond training students to practise medicine, solely for the cure of individuals. Increasing knowledge brings added responsibility to the practitioner of medicine. Moreover, the conviction is borne in upon us that medical practice must not and cannot be dissociated from state medicine. To the conscientious practitioner, prevention and practice are inseparable.

Public Health, Preventive Medicine and Personal Hygiene are assuming capital importance in medical education, and if we at McGill do not heed the warning, we shall be left high and dry on the bank, while modern achievements flow by. There is an obvious trend in many public organizations and clinics (some of them established by the laity) to promote the welfare of the commun-Add to this trend, the increasing number of journals, lectures and other forms of propaganda pointing to the same end. State laws are being enacted with a view to prevention and statutes are being formulated to combat the manufacture of impure foods and to control the use of harmful drugs. Welfare clinics have been organized in every city on the continent to promote health and to prevent disease: witness the

child welfare centres, milk stations, the prenatal clinics, the dental services, school inspections. mental hygiene bureau, industrial health services —all these and many more: think what they mean as opportunities to the graduate in medicine! Think of the number and variety of outlets for service--for a livelihood along the lines of public health and practice! It may or may not be true that the day of the general practitioner is passing. Certainly the type of a generation ago is fast disappearing, as is indicated in recent statistics showing that with the rise of specialism, a great change has been effected in the status of the general practitioner of medicine. According to Dr. George Vincent, the future practitioner will be a counsellor of health, endeavouring not so much to cure disease as to guide through life the normals from childhood to old age. In this sense, too, he becomes an educator of the masses, a missionary of health.

Sir James McKenzie, realizing the needs of modern medicine, opened an Institute of Medical Research—the main purpose of which was the investigation of the beginnings of disease—i.e., to study in a sound way the elements of preventive medicine.

As students we have been taught through pathological eyes, and not perhaps, enough through the normals. I am firmly convinced that the importance of the normal is insufficiently stressed in our education—that students receive too little consideration of applied hygiene in early years. What, may I ask, is taught to-day in physiology, bio-chemistry and anatomy to indicate their bearing on preventive medicine? What of the functional importance of the normal? Well enough it is to stress the value of teaching these basic sciences as abstract subjects, but how much more interesting and valuable if the matter be applied?

Even in its clinical aspects, prevention has been ignored—the human-sociological side is neglected, and all too often have only advanced conditions been shown—as contrasted with the beginnings of disease. Clinics on tuberculosis, for example, so rarely consider the all-important questions of home environment, prevention of the spread of infection, ventilation, cohabitation, and all those features essential to public health.

No, gentlemen, hitherto our graduates are all too ignorant of the great needs, the great duties connected with public health; the language of state medicine is foreign to them, and they are unable to participate in the great community health movements as leaders and advisers. Intelligent cooperation of the general practitioner with the officers of health and the district in general is essential. The modern practitioner requires more knowledge of human beings, of psychology, and of what Emerson calls "environmental medicine."

It is by such means, too, a following of the examples of the early Greeks in learning to apply the laws of personal hygiene, that the standards of the profession will be raised, the cult of irregular practices will be frustrated, and the way open for a personal and public influence that will change the attitude towards medical education and give hope for the future.

For this reason we shall endeavour to move along well-defined lines. In a semi-popular course to be given in the first year, you will be introduced to the larger purpose for which you entered upon the study of medicine, as well as to the practical opportunities that lie before you to contribute directly to the welfare of the community and indirectly to the welfare of the nation. After all, the building up of normal manhood and womanhood is the greatest asset of which any country can boast. There will be made known to you what has been achieved, through public health activities in peace and in war, to obviate the spread of disease. Opportunities will be afforded you to learn in a very general and elementary way how medicine has redounded to the economic advantage of various countries; how epidemics have been prevented, cities made clean and commerce been promoted by means of concentrated and combined action to those great ends. You will visit with your teachers early in this year some of the centres which contribute to public health and the depots where the public is safeguarded. I refer to the child welfare clinics, mental hygiene committees, stations, incinerators, abattoirs, model dairies, etc. You will be taken to the Bureau of Social Hygiene, where work is carried on to prevent the spread of venereal disease. You will see in a general way what is being done by these bureaux of health. Above all, you will learn the importance of normal conditions, and your physiology, your anatomy and your chemistry will be utilized to illustrate in a well-defined manner how much their application means to a normal individual.

Throughout your whole course, moreover, every department will be asked to coöperate in carrying forward this preventive idea, to keep alive your interest in applied hygiene and preventive medicine. After all, the most important function of a Department of Public Health is to infuse the preventive idea into every other department of the school. You will find as you proceed in your course that in every subject on which you are instructed, there is a great field of prevention for adding to your knowledge of preventive medicine. When, therefore, you reach the special course on Public Health to be given you in your later years, you will learn in detail and in more concentrated form its principles and practice. Here you should learn chiefly the technical aspects of the subject, and the field-work, for these are the subjects, and the only subjects, to be taught by the Professor of Hygiene himself. Other fields of preventive medicine belong to the Department of Medicine and its ancillary branches.

It is my earnest hope that in the near future, scholarships may be obtained for those young graduates who, having pursued a year or more of hospital work, will then study one or another of the specialties in its particular application to the preventive side. In my judgment, there is a great future along these lines in all of the specialties, as well as for him who cares to enter general practice. In paediatrics, in obstetrics, and more especially, in general medicine, a knowledge of the principles-dietetic, physical and hygienic, which are essential to a normal healthy life, should be the property of the physician, and the public is being rapidly educated to an appreciation of these

Preventive Medicine is no longer a pious hope, but a very practical aim, and he who can counsel wisely for the maintenance of the mens sana in corpore sano is verily one of the greatest benefactors to society at large.

A doctor who had taken up as his specialty the treatment of skin diseases, was asked by a friend how he happened to select that particular branch of medicine.

"There were three perfectly good reasons," replied the physician. "My patients never get me out of bed at night; they never die, and they never get well."

An Address

ON

THE TREATMENT OF PNEUMONIA

JONATHAN C. MEAKINS, M.D., F.R.C.P., F.R.S.E.

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HERE arises a dual consideration in the treatment of acute specific infectious diseases; firstly, the development of resistance or indifference (sometimes called immunity) to the invasion of the specific organism and neutralization or antagonism to the specific virus; secondly, the correction of vicious functional disturbances consequent upon toxic action or structural lesions resulting from the specific infecting organism or its products. In pneumonia the problem is not so simple as would appear on first consideration. It is true that a certain and very important class of pneumonia is apparently due to a specific organism, namely, the pneumococcus. This class consists almost exclusively of the so-called cases of lobar pneumonia. It might be expected, and has been hoped, that a specific anti-serum could be produced to cure this infection. Many attempts have been made to accomplish this object and they all signally failed until it was shown by Cole that there were at least three different variants of the organism which could produce this disease and one additional but conglomerate type which was equally pathogenic. Of all these biological varieties it has only been possible to produce a specific anti-serum to one of them; namely, Type No. 1. The results obtained in the use of this serum in cases definitely proven to be due to this strain have been encouraging but only in proportion to the celerity with which the specific organism has been identified and the specific serum administered in sufficient quantities. In all other cases of pneumonia, whether of the lobar or lobular varieties (including influenzal, embolic and tuberculous) the success of treatment is largely dependent upon an understanding of the accompanying disturbances of function, especially those disturbances which may occasion a deleterious influence upon the organism either in a localized or general manner.

From time to time many drugs and specific

forms of treatment have been advocated in this disease. The results attributable to any of these have been uniformly discouraging. Certain therapeutic agents, such as urea quinine hydrochloride, have had a period of local and enthusiastic support. It cannot be said that the results have justified enthusiasm. We are, therefore, reduced to treat this disease as one with a self-limited duration and to attempt by all means to correct any dangerous or complicating developments and at the same time to place the patient in the most favourable condition to overcome his temporary disability.

In dealing with any infectious diseases we are confronted with what may be called general and local effects. The general effects are those which involve the organism as a whole, and are usually dependent upon a general toxic action although, in some instances, such as tetanus, the toxin has a selective action on one tissue. In pneumonia the toxic effects would appear to be of a general nature although certain tissues such as the nervous and cardio-vascular, would appear to suffer most. Whether this be due altogether to the pneumococcic toxin or whether to a coincident oxygen deprivation is not at all clear. It is probable that both play a rôle. Unless we can neutralize the specific toxins we are driven to attempt to promote their elimination. This we do through the kidneys and the bowel. Probably one of the most important, although simple, methods of treatment which we have in all infectious diseases is copious internal hydrotherapy. The ingestion of large quantities of water with consequent stimulation of renal secretion plays an important rôle in the treatment of pneumonia as in other infectious diseases.

On turning to the local effects of pneumonia we find that there are a number which call for treatment. It is important in all pulmonary diseases which lead to interference with pulmonary func-

tion, that we should first inquire of ourselves in what manner this function may be disturbed. This disturbance will be influenced in large measure by the portion of the lung involved—in other words, whether the bronchi or alveoli are the site of the lesion. It is a well-known observation that lesions of the bronchi do not seriously interfere with respiration unless a diffuse obstructive condition be induced. On the other hand, it is recognized that one of the most important symptoms of alveolar inflammation is an increase of the respiratory rate with a decrease in its depth. We shall not enter, here, into the manner in which this may be a dangerous phenomenon, but will merely recall the importance that is attached to the occurrence of excessively rapid respiratory rate from a prognostic point of view Frequently tachypnœa is associated with the development of cyanosis, one of the most portentous signs we have in this disease, as it indicates an increased percentage of reduced hæmoglobin in the capillaries; a condition which also presupposes a decrease in the oxygen saturation of the hæmoglobin and reduced partial pressure, in the plasma and cells. This would indicate that the tissues are acquiring their oxygen supply with greater and greater difficulty. This is serious enough under normal conditions of temperature and metabolism, but in acute febrile disease it is even more disastrous. On the other hand, there is every evidence to indicate that the elimination of carbon dioxide is increased in lobar pneumonia during the greater period of its course, and it has been found that there is no tendency in this type of pneumonia for an acidosis, either gaseous or otherwise, to develop; but, during the early period of lobar pneumonia and during a greater part of the course of broncho-pneumonia a retention of carbon dioxide has been demonstrated, leading to a compensated gaseous acidosis. There is no indication, however-in fact all evidence would go to demonstrate the contrary-in favour of the alkali treatment of lobar pneumonia. Indeed, there are a number of points which would strongly contra-indicate such a procedure.

The presence of cyanosis is a strong indication for the proper use of oxygen. In fact, it may be considered that in many cases of this disease oxygen therapy is almost a specific necessity. It is true there are a number of cases in whom cyanosis develops to a slight degree. It is also true that after it has been conspicuously present for some days without correction that oxygen therapy may be of comparatively little value. The fault

here is not so much to be found in oxygen therapy. but in deferring its use too long. As soon as cyanosis develops in any pulmonary lesion, be it of an inflammatory nature like pneumonia, or in an afebrile condition such as cedema of the lungs occurring with mitral stenosis, oxygen therapy is imperatively indicated. A great deal of scepticism and disapproval has been levelled at oxygen therapy. This has resulted not from any critical and experimental judgment regarding its value, but because those who have administered it have not intelligently understood the indications and proper methods of its use. In order that oxygen therapy may be of any value it is essential that the oxygen should enter the lungs. The use of the so-called funnel method is to be condemned because it is useless and expensive. There are a number of instruments which permit of an accurate and economic administration of this drug. The main principle is that the oxygen shall be introduced into the naso-pharynx either by means of a catheter through the nose, or the mouth, or by means of a tightly fitting mask. The first of these methods is readily applicable in children while the latter can be used with advantage in adults. Furthermore, the dosage must be regulated. One of the great objections to the funnel method is that the patient does not usually inspire the oxygen owing to its rapid diffusion into the surrounding atmosphere. Furthermore, even if he did inhale the drug it would be in such small quantities as to have little or no effect. The instruments devised by Haldane, Leonard Hill, Yandell Henderson, Collins, Barach, etc., are, all of them, based upon proper physiological principles and give excellent results.

The object to be obtained in oxygen therapy is that the partial pressure of the oxygen in the alveolar air shall be increased. This is necessary in order to overcome the obstruction to gaseous diffusion caused by the inflammatory exudate and damage in the alveoli. Also, Hastings, Neill, Morgan and Binger have shown in lobar pneumonia that although the CO₂ can be readily eliminated from the circulating blood the acquisition of oxygen is greatly impaired. This has been held by them to indicate that: "When the mechanism of the gas exchange in the lungs is affected, absorption of oxygen fails before elimination of carbon dioxide is significantly impaired." This deficiency can apparently be overcome to some extent by increasing the amount of oxygen in the inspired air.

In dealing with any respiratory disturbance it

would appear to be advisable to use respiratory stimulants When, however, we cast about to settle on such, we find that our choice is pathetically deficient. Up to the present there is only one substance which has been demonstrated by experimental and critical observation to have any pronounced stimulating effect upon respiration. It would be well to define exactly what we mean by a respiratory stimulant. Anything which increases the rate of respiration at the expense of the depth cannot be so termed. A respiratory stimulant is essentially one which primarily increases the depth of respiration. The use of caffein, strychnine and other so-called respiratory stimulants is based upon the scantiest evidence; in fact, it may be said to be non-existent if we take the definition given above as a criterion of what a respiratory stimulant should be. Recently, experimental evidence in favour of the evanides being a stimulant to respiration has been brought forward. The experiments would seem to indicate this were the case, but as yet no critical, clinical study has demonstrated that they are of value in pulmonary diseases.

The most powerful respiratory stimulant is carbon dioxide. Up to the present it has not received the consideration as a therapeutic measure which its functional influence would indicate. In normal animals it increases the depth but not the respiratory rate if given in proper amounts. In pneumonia the few experiments which I have been able to do would indicate a similar effect in this disease. In cases in extremis it has not been found to be similarly effective, probably because the respiratory centre has become exhausted and cannot respond to the stimulation.

The beneficial effects of fresh air have been repeatedly advocated but the exact method of action is not at all clear. It has been claimed that it is due to an increased amount of oxygen but this we know not to be the case, as the oxygen in a warm enclosed room is no different from that of the outside air. There is a point, however, which has not been sufficiently recognized nor to my knowledge has any experimental work been done on it; namely, the face reflex. The stimulating effect of cold air on the face is quite amenable to demonstration. It may frequently be observed in ourselves. The profound effect of the application of cold to the face in fainting spells is well known. The exact method whereby this reflex is effective is, however, not at all understood. We know that on exposure of the face to cold air the respiration obviously increases in depth; but whether this continues for any length of time has not been determined. It is not necessary that the air be cooled as a similar result is obtained when it is exposed to a stream of actively circulating atmosphere.

It would seem reasonable that the patient should be placed in such a position as to give every advantage to efficient respiratory function. This has been found by experimental means to be the semi-recumbent position. The prone position accentuates any interference with respiration, hence the strong inclination of all patients with respiratory distress to assume the orthopnœic posture. For the same reasons it is imperative to remove conditions which interfere with the diaphragmatic and costal movements such as abdominal distension, gross pleural effusion and pleural pain. The latter is probably the most difficult. Fortunately, it usually occurs in the early stages of pneumonia when morphia may be used without danger. In the later stages when the respiratory centre is showing fatigue and it is more susceptible to the depressant action of this drug, it must be used with caution and in small doses, particularly in children and the senile.

The deficient oxidation of the arterial blood exerts a profound influence upon many tissues, particularly is this the case if it be produced acutely. It has been shown that the heart is more susceptible to oxygen want than are other muscles. Although bacterial toxins have a deleterious influence upon the myocardium, this has never as yet been accurately determined. On the other hand, the influence of deficiency of oxygen has been worked out with mathematical exactitude. We must, therefore, appreciate that the frequent myocardial failure of pneumonia may be due in great part to oxygen want. If such a condition be continued for long, permanent damage occurs. In fact, it may be so serious as to be irreparable and circulatory failure may occur in spite of all remedies. A somewhat similar harmful effect is exerted upon the peripheral circulation and the central nervous system. I have been able to demonstrate that the delirium of pneumonia may in great part be removed by the elimination of oxygen want. In addition, I have found that after prolonged anoxemia in pneumonia a patient may remain unconscious and have profound vasomotor disturbance even when the crisis of the disease has occurred. In fact, a patient with an afebrile condition and resolving consolidation may be kept alive for days by the administration of oxygen even though there be unconsciousness and profound circulatory disturbance. A similar condition has been found in carbon monoxide poisoning. If the deprivation of oxygen be continued for a sufficiently long time and in sufficient severity, the damage to the central nervous system may be so severe as to prevent the re-establishment of normal function after the carbon monoxide has been totally removed from the body. The individual may live in an unconscious state for days with a progressive decrease in nervous function and death eventually ensue, or he may live on for many years in a hopelessly insane condition. Haldane has demonstrated that this is not a specific action of carbon monoxide but is a direct result of oxygen want.

The use of cardiac "stimulants" in pneumonia has long been advocated as circulatory failure is dreaded equally with failure of the respiration. It has been attributed by some to the increased pulmonary resistance consequent upon the extensive interference with the pulmonary circulation. The proof of such a contention has been wanting. All the evidence would indicate that circulatory failure is due to a direct toxic effect upon the myocardium of the pneumococcic toxin, and to damage to the muscle arising from oxygen want. This leads to a decreased cardiac systole and a

deficient circulation of blood and vaso-motor paralysis. The only drug which we can trust to improve and forestall such a condition is digitalis. Its influence is probably more prophylactic than curative. It should, therefore, be given during the early course of the disease before circulatory failure has developed rather than after. This does not mean that it should be given in excessive amounts the present passion for so-called "digitalization" should be avoided. Moderate doses throughout the disease are indicated rather than massive amounts when the circulation is already showing signs of failure.

Summary

The important measures to be taken in the treatment of pneumonia, irrespective of the general therapeutic indications which should be employed in any infectious disease, are:

- (1) The copious ingestion of fluids.
- (2) The orthopnœic position.
- (3) The free circulation of air in the room, if necessary effected by fans.
- (4) The early and continuous use of oxygen in a proper manner if the slightest cyanosis appears.
 - (6) The use of digitalis.

What do Physicians Prescribe?—The impression seems to be prevalent, although without any definite evidence, that physicians are again tending to the prescribing of ready-made formulas, and that the art of pharmacy is becoming less and less a necessity as an accessory to modern medical practice. In this connection, it is interesting to observe the results of a survey recently made under the Commonwealth Fund. The investigators examined 1,000 prescriptions, selecting at random a hundred prescriptions from each of ten states. Of these prescriptions, 51.9 per cent contained only official ingredients, 29 per cent contained both official and nonofficial, and 19.1 per cent contained only nonofficial ingredients. In a second study of these prescriptions, it was found that the number of ingredients included in the 1,000 prescriptions totalled 2,680; of these, 81.4 per cent were official and 18.6 per cent non-official. As the study progressed, the ingredients of 17,577 prescriptions were tabulated. These were found to contain 40,454 items, of which 77.8 per cent were in the United States Pharmacopeia, 5.4 per cent in the National Formulary, 6.8 per cent non-official but not proprietary, and 10 per cent proprietary. A study of 100,000 prescriptions showed that from 70 to 85 per cent called for the skill of the pharmacist in their compounding. This investigation revealed clearly that the filling of prescriptions is not, as has been believed, largely a matter of transferring a proprietary or secret formula preparation from one container to another as was largely the case twenty years ago. The results are encouraging in their indication that physicians are holding in large measure to the ideals urged on them when students by their instructors and emphasized by the Council on Pharmacy and Chemistry.-Jour. A. M. A., Sept. 5, 1925.

An Address

ARTERIOSCLEROSIS*

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DISCUSSION of the problem of arteriosclerosis is immediately confronted by difficulties of interpretation of the term, the understanding of the progressive lesions, the significance of many factors suggested as causes and the appreciation of the end results and sequelæ. Many authors apply the term "arteriosclerosis" broadly and indiscriminately to all kinds of lesions occurring in the arterial walls, while others like Marchand and Jores restrict its application to special types of pathological processes, and still others use the term to indicate only those forms of chronic arterial thickenings which are associated with processes of degeneration. There are many subdivisions of these definitions and other restrictions applied to the term, until to-day the clinician finds himself in a state of confusion in knowing when he may properly use the term "arteriosclerosis" to define the disease which he recognizes under his finger, or when he should employ one of the numerous newly-coined words which have littered our literature as an evidence of our ignorance of the topic. We had best return to the original use of the word "arteriosclerosis" as it was applied in 1831 by Lobstein who, when he introduced this new term, briefly stated that it was to be employed in the presence of a "hardening and thickening of the arteries." He made no restriction respecting the causes which had brought about these changes in the arterial wall, nor respecting the manner in which these pathological processes had developed in the tissues. We will still be on safe ground if we speak of any form of hardening and thickening of the artery as a type of arteriosclerosis. From this point onward it is easy to introduce subdivisions, wherein peculiar types of arterial thickening, or refinite processes bringing about hardening, can receive their distinctive deter-

mination by a terminology which will aptly convey the proper meaning to the nature of the change. Thus, by this suggestion, we may all be free in the use of the term "arteriosclerosis" without being forced to utilize the microscope before designating a given lesion by this term. It will still make the term adaptable to its use in the laboratory and in the clinic.

It is only in recent years that the need for a definite stand upon this problem has become apparent, for in the period prior to the nineties, little attempt at the distinction between the various types of arterial lesions had been made save for that of syphilis. Lately, however, through a much closer study and by application of the experimental method, it has been found that there is a great variety of changes which may arise in the arterial wall, sometimes in the intima, or in the media, or adventitia, each of which has the quality of producing a hardening and thickening of the wall, and in many of the cases when described, have received a name which was the particular choice of the author, but which in the eyes of many others was hardly suited to receive a place. It has been found, moreover, that the end result of many of these lesions gives evidence of characteristics which were easily recognized as arteriosclerosis, but which in that earlier phase had not yet assumed characters suggesting a relationship to the later event. This fact that there is a variety of pathological changes in the arterial wall which, in the end, result in a thickening of the vessel and a hardening of its structure, brings up immediately the question whether in our understanding of the term we should not also be ready to recognize these lesions as merely stages in the arteriosclerotic process. This to-day is my own stand, and I have on repeated occasions enunciated my attitude. It does not seem possible to concentrate our attention only upon the final outcome of a progressive pathological process

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giving to it a distinctive name, while leaving the antecedent phases to be confused in a terminology which in no way gives us a conception of their direct relation. Given then, at the very beginning our understanding of the term "arteriosclerosis" as indicating the hardening and thickening of the arterial wall, it forces us to complete the interpretation by indicating the manner in which these structural changes have been brought about.

It has been said in the past that arteriosclerosis is the physiological outcome of arteries which were improperly constructed at the very time of our birth, and that certain individuals possessed a weakness in the arterial architecture which made them more susceptible to this peculiar damage. This view contains a morsel of truth but it in no way indicates the nature of the weakness nor explains the manner in which these poorly constructed tubes progress through a series of changes to arrive at a serious distortion of their elements. Broadly speaking, the arteries of man show progressive alterations through the succeeding decades of life. This is most apparent in the quality of the elastic tissue in the media of arteries and in the contractile muscle. With advancing years, the elastic tissues lose their quality of elasticity, become more brittle, show a peculiar dryness of structure and change their chemical constitu-Furthermore, the muscle fibres which alternate between the layers of the elastic tissues show an atrophy and loss of substance until the quality of contraction almost disappears and the vessel assumes a more rigid character. In not a few people of very advanced age we find the arteries devoid of nodular thickenings and lacking all the common characteristics of sclerotic vessels, but nevertheless showing this physiological degeneration of the tissues which converts them into rigid tubes whose function in support of the pulsations of the heart has almost disappeared. This form of degenerative change has been spoken of as a type of physiological arteriosclerosis, and further comment upon it need not be made.

Arteriosclerosis as we know it and as we encounter it clinically and in our laboratory studies is an acquired condition and must not be confused with physiological changes as they occur in so many tissues of the body. Not uncommonly it has been indicated that arterio-

sclerosis is the outcome of the wear and tear of life, leading us to believe that the lesions which make their appearance with increasing frequency in advancing years of life are merely the outcome of our normal activities. This is only true if we admit that many of the diseases of children and adolescents are the normal inheritance of every individual and that everyone must be subject to them in whatever circumstance he may find himself. It is true we have as yet not passed the time when we are told that every child must have his attack of measles and searlet fever as well as other infections of childhood, but we cannot admit that this inference is correct, and we must tend to eradicate all such diseases from the life of each individual. Moreover, it is not only in conjunction with these more definite infectious diseases that we must realize the opportunity for the development of accessory lesions and sequelæ in distant parts of the body, but also, with the very common infections of the nose and throat, tonsillitis, bronchitis and even infections of the skin, each of which may be the initial focus from which inflammatory processes in other parts of the body may have their inception. It is only in recent years that we have come to appreciate the very serious nature of the metastases arising from infections about the tonsils and teeth, and there is no doubt that there are many other foci which are equally important in relation to the distribution of bacteria giving rise to chronic infections in many orders of tissue.

These recent discoveries respecting the mode of entrance of bacterial agents to the human body have given rise to the belief that many of them are very modern in their occurrence. This is, however, far from being the case, for we find from the analysis by Ruffer and others that the ancients in the early history of civilized man were subject to lesions of the bones, the teeth and the arteries quite similar to those which we meet at the present time. Arteriosclerosis, it would appear, was equally as prevalent amongst the Egyptians of the early dynasties as it is now, and we have the interesting report by Shattock that the Pharaoh of the Exodus had an arteriosclerosis of the aorta similar to that which we so commonly encounter at the autopsy of elderly individuals. Arteriosclerosis, thus, is not a new disease, although our modern civilization may add new agents which influence the well-being of the arterial structures. The examination of numerous Egyptian mummies by Ruffer showed that nodular endarteritis, atheroma, calcification of the arteries, and medial sclerosis was present, and was similar to the type of lesion which we commonly encounter to-day. These findings, moreover, are of importance not only as illustrating that arterial disease has long been with us, but also as showing that certain factors which have been suggested as causes of them cannot be taken too seriously. The influence of a meat diet has often been suggested as one of the causes of arteriosclerosis, but inasmuch as these ancient Egyptians were not given to the consumption of meat, it is evident that meat played no part in producting their lesions and in fact offers evidence that other agents are more important. On the other hand, the influence of diet cannot be entirely disregarded, for it has lately been shown that diets containing fatty substances and cholesterol when taken continuously, and in large quantities tend to produce curious depositions in the intima of arteries, of fatty materials which are to be seen as small nodular masses and which may be related to other more permanent lesions. At the present time it is not clear how far the fatty streaks of arteries give rise to areas of nodular endarteritis, but we do know that the large majority of these small flecks disappear, when their inciting cause has been removed. These streaks make their appearance not only in consequence of an abnormal diet, but also in conjunction with certain diseases which disturb the metabolism of these fatty substances. This is particularly true in typhoid fever and influenza in which these lesions are almost constantly present. The determination of the meaning of these depositions is not an easy problem and much further work is necessary in the study of the biochemistry of fats and lipoids before we are able to understand clearly the reason for their development. We have on several occasions been able to reproduce these lesions, as we see them in the human, in our laboratory animals by feeding them with materials rich in oils and cholesterol. We have found, however, that in the majority of instances after some weeks, when this diet was removed, the lesion gradually disappeared. The yolk of egg contains large quantities of these substances and in our experiments serves to give us positive results. In these experiments, how-

ever, we are able to reproduce only one particular type of arterial thickening, and though we may include this under the heading of "arteriosclerosis," it is clear that the lesion is specific in its kind and has no relation to certain other lesions which bring about hardening of the arteries.

In my own studies I have been particularly impressed by the influence of bacterial agents in causing damage of the nature of an inflammation, followed by scarring of the arterial wall. We have found, for example, that in the case of pneumonia, rheumatic fever, septicæmia, scarlet fever and typhoid fever it is quite common to find a localization of the bacteria upon the outer walls of the arteries and an invasion of the middle coat by these organisms. Each of these areas of infection is followed by an inflammatory reaction of moderate intensity which is almost always non-suppurative. Most commonly the localization of these infections is about the aorta and its large branches, but occasionally the smaller vessels of the periphery are likewise involved in an infection and inflammation. In each instance the end result of the inflammatory reaction has been to lead to a focal destruction of the intrinsic tissues of the arterial wall followed by the development of scar tissue. Naturally, the amount of damage varies in the individual case and the amount of scarring differs both with the character of the infection and the resistance of the indivi-These localizations may for a long time escape detection by the naked eye, but others again progress quite rapidly to the development of a superficial thickening and a nodular protrusion from the intima into the lumen of the vessel. Dr. Brown, who was with us during the past year, has repeated our studies and has confirmed and extended our results. No focus of infection is too small to be considered, for even those which are apparently unimportant may serve to distribute infection from day to day, leading to new areas of inflammation and damage not only in the arteries but in many of the internal organs. Such initial foci are not to be regarded as areas from which bacteria are being continuously drawn, but rather as regions in which periodically, or at irregular times, occasions present themselves for the infecting agent to migrate from its local situation. All gradations of intensity of these foci of initial infection are met with, from the very chronic and partly encapsulated areas as we find them about the teeth or in the tonsils which only occasionally give rise to a metastatic distribution, to others which continuously give off bacteria and their products, so that in a relatively short period of time the individual is suffering from many inflammatory processes of low-grade virulence but of persistent character. It is under these conditions that the heart, the arteries and the kidney become involved and in the end, when these inflammatory processes have had their exacerbations and their remissions, the individual appears before the physician as a case of the triple alliance of heart, kidney and arterial disease.

It is probable that the infecting micro-organisms which arise from local sites of infection are not always of the same kind though the nature and progress of their lesions may be very similar. However, up to the present, it would appear that the streptococcus group of micro-organisms plays the most important rôle in giving rise to chronic inflammatory processes and such conditions as are difficult of diagnosis. The progress of these inflammations is very slow and is usually not accompanied by the clinical manifestations whereby we may recognize the nature of the pathological process, and the individual harbouring them is unaware of the severity of his affliction, though he may present a general constitutional depression of no particular type. And thus arteriosclerosis may become cumula-The inflammatory reactions which are acquired through bacterial damage to-day, pass through their early phases to the period of scar; those of the morrow likewise have their sequence but are not synchronous with those which are antecedent. Gradually, however, the accumulation of these repeated injuries leads to a much damaged vascular structure with all its distortions and with its serious impediment to the circulation. These changes which are most readily followed in the human aorta are also to be observed in the smaller branches, though here the eye must be assisted by the microscope. More and more have we become convinced of the important rôle played by bacterial infection in the production of certain types of arterial lesions which are recognized in the end stages as types of arteriosclerosis.

Syphilis of the arteries has always been put

into a class by itself although it also belongs to the infectious variety. Many have maintained that we must not discuss the problem of syphilitic arteritis under the heading of "arteriosclerosis." This, however, is only a refinement, for we recognize that there are other microorganisms which are equally specific, and which likewise are prone to become implanted into the arterial walls; the syphilitic lesion is only a special one resulting from the localization of the specific spirochæte. There are many principles respecting the migration and distribution of bacteria which apply as much to the virus of syphilis as to other organisms. In all of them, when bacteria are distributed by way of the blood and the lymph, they tend to attack the arterial wall from its external parts and then continue to invade more deeply the arterial tissues. The character and rapidity with which the lesion is produced differs with the various micro-organisms and in syphilitic lesions is so distinctive that it is usually not difficult of recognition, and we give it a separate classification under the heading of "syphilitic arteritis," or better, "syphilitic mesarteritis." The feature about syphilis which makes it distinctive not only in its clinical progress but also in its pathological lesion is that the virus of syphilis, when once implanted, appears to remain active for long periods of time, commonly for five, ten or even twenty years. Our recognition of the syphilitic process in the arterial walls is usually five years after the primary infection, and aneurysms frequently do not give evidence of their presence until ten years or more. These inflammatory processes wherein destruction of the arterial elements is under way, progress so insidiously, so extremely slowly, that it is difficult to compare them with the infective processes which are better known to us in general practice. The ordinary bacterial infections may be observed in the development of the lesion from day to day, reaching their acme within a few days or weeks and again disappearing with equal rapidity. But with syphilis it is entirely different in that the infecting agent has such low virulence and the tertiary lesions advance so slowly.

The outstanding feature of the syphilitic lesion is not the intensity of the inflammatory process but the progressive and unhampered destruction which occurs in the essential elements of the arterial wall. The converse of this is equally true, that is, that no progressive lesion following upon a syphilitic infection will take place when the spirochæte is removed from the injured tissues. This also is true in aneurysm for it is a fact that every progressive aneurysm is still infected by the spirochæte.

Recently we have again turned our attention to the influence of the virus of rheumatic fever upon the arterial system. Some thirteen years ago we drew attention to the importance of the inflammatory processes in the arteries developing during acute rheumatic fever and we were able to demonstrate a number of cases in various stages of the progress of the arterial damage. These lesions resulting in acute rheumatic fever are peculiar and are, during their acute phase, sufficiently distinctive for us to recognize their mode of origin. As you are aware, Aschoff demonstrated peculiar inflammatory foci in the musculature of the heart which were quite distinctive for rheumatic fever. Similar focal damage occurs in the arterial wall and is found to pass through stages of development just as we see it in the heart. Sometimes these lesions are few and scattered; at other times they are disseminated quite widely and involve the walls of vessels very severely. Most commonly these inflammatory processes (which, like those of syphilis, are first distributed over the outer surface and later invade the more essential middle coat of the arteries), are localized in greatest numbers in the aorta, but they also affect the smaller vessels even to the small ramifications in the brain, the heart and the kidney. During the acute phase, the immediate effect upon the arterial wall is usually not great, although in a few instances sufficient damage may be brought to bear upon the artery to lead to a weakening and the development of small aneurysms. Usually, however, the damage from this rather chronic inflammatory process is greatest in the scarring which it leaves in its wake, and which, as I have indicated in connection with general infections, is prone to become cumulative, so that the individual in advanced years shows more and more arteriosclerosis until the amount of damage done has a definite influence upon the circulation. It is particularly in the smaller vessels that these late effects make themselves felt, for in them the changes induced by scarring and puckering of the wall has a greater effect upon the lumen of the vessel than in the aorta where the impediment is of less influence. Pappenheimer has substantiated our results and Brown has also laid emphasis upon these findings. We may therefore point to the specific type of arterial damage present in rheumatic fever as similar to the type noted in the study of the syphilitic lesion. In his study upon the clinical evidence of acute aortitis, Dr. Thos. McCrae has emphasized the frequency with which these lesions are recognizable in the patient. It is important that we all realize the constancy with which such inflammatory processes occur in the arterial wall and appreciate that they constitute important factors in the subsequent development of arteriosclerosis.

The type of arteriosclerosis which is best known to the clinician is that which occurs in the peripheral arteries. The vessels of the extremities, which are easily palpable, suffer a type of arteriosclerosis which converts them into rigid tubes which, owing to the amount of calcification which has taken place in their walls, are felt under the palpating finger as corrugated structures. This type of arteriosclerosis involving the mid-sized peripheral arteries differs essentially from that which is found in the larger trunks, and differs also from that which is commonly seen in the minute distributing vessels of the internal organs. The arteriosclerosis of the radial, iliac, popliteal and tibial vessels is of this kind. Under these conditions we find that the outer and inner coats of these arteries are unaffected, while the middle coat is in a state of degeneration, with destruction of its muscular elements and a replacement of them by calcified material. This type of lesion bears no direct relation to the scleroses found in the aorta, the vessels of the heart, or the kidney, or the brain. It is not uncommon to find that an individual may have quite a marked arteriosclerosis of the vessels of his extremities and yet be without evidence of visceral arterial damage. It is, therefore, unwise to suggest that because an individual possesses a sclerosis of the superficial arteries that he also possesses scleroses of his internal arteries. It is true, of course, that many individuals show the presence of both, but we must recognize that the scleroses of the vessels of the extremities have arisen from causes quite independent of those which have led to the

hardening and thickening of the arteries of the brain or heart.

These peripheral scleroses, which are so common, appear to bear a direct relation to the activity of the tissues which they supply. Work seems to be an important factor in bringing about sclerosis of the arteries of the arms and legs, and it is not difficult to demonstrate that the right-handed individual has more marked arteriosclerosis of the vessels of the right arm than of the left. Likewise, it is true that those individuals who each day are forced to be upon their feet for long periods of time develop an arteriosclerosis of the vessels of the lower extremities to a more marked degree than occurs in the remaining peripheral system. This condition of work-arteriosclerosis follows in the wake of an over-taxation of the function of these arteries when, through the stress of physical activity, the muscle tissue of the middle coat suffers fatigue and subsequently degeneration. All of our tissues which become overtaxed by the amount of work that is thrust upon them will evince degrees of degeneration of different

In the researches upon experimental arteriosclerosis, the type of lesion simulating the changes seen in the radial artery are most easily produced. Various methods have been devised whereby either by physical stress or through certain chemical agents, injuries have been produced upon the sustaining muscle of the arteries and have led to the production of a calcareous degeneration of the vessels.

Calcification of the media of arteries need not have a very serious influence upon the circulation in general; its presence does not cause an impediment to the onward flow of blood, for the arteries in this disease are not narrowed but may even be slightly dilated. The lesion, however, may have a definite influence upon the local circulation in the tissues which are supplied by the particular artery, inasmuch as the rigidity of the vessel wall does not permit the artery to have a controlling influence over the quantity of blood which is supplied to the tissues. Thus, in the state of rigidity the artery is unable to increase the quantity of blood to the part by an active dilatation during a period of functional activity of the part, and also it is unable to reduce the blood flow when the part is at rest. This lack of a proper balance between the contractile power of the vessel wall and the

activity of the tissues which it supplies, leads to an incapacity on the part of the tissues and frequently to their more rapid fatigue.

On the other hand, the arteries as do all other structures, suffer more readily from a secondary insult when the tissues have been previously injured. Every now and again we find that an individual who has had a marked peripheral arteriosclerosis, but in whom no difficulty of circulation has been experienced over years of time, suddenly develops in one extremity or another, an obstruction to the circulation sufficient to bring about gangrene. Under these circumstances the primary peripheral sclerosis has, in itself, not been at fault in leading to the gangrenous state, but its presence has allowed a secondary factor of thrombosis or infection to implant itself upon the inner coat of the artery and bring about occlusion of the lumen. This secondary process is always an inflammatory one involving only the inner coat of the artery, and not associated with the degenerative lesion which occupies the middle coat. Hence in the cases of senile gangrene of feet or hands, we find the arteries of supply markedly sclerosed in their middle coats with a heavy deposit of calcium salts, and showing an occlusion of the lumen brought about by the organization of a thrombus. These sclerosed vessels are irreparably damaged, and with the inadequate circulation present in elderly individuals, the opportunity for a compensatory blood supply is not good. The accessory vessels of the limb are frequently themselves involved in more or less sclerosis and they are unable to assume a larger rôle in the circulation of the limb. The identical lesion is also to be found in the vessels of diabetics who have suffered gangrene of one of the extremities. In the latter, we are still uncertain how the primary damage to the middle coat has been brought about. Many of these individuals are in middle life and have no apparent reason for possessing calcified arteries as we see them in old age. No component of the disturbed chemistry of the blood has been found which will explain the manner of damage to these arteries, but the end result is the same in that there is a calcified media and an organized thrombus within the lumen.

In the brain, the heart and the kidneys, the arterial lesions are of a different kind. In these organs we rarely find medial sclerosis, and calcification of the middle coat is almost unheard of.

The lesion is almost always one affecting the intima where a nodular thickening develops which protrudes into the lumen and has a very material influence upon the circulation of the blood. In these small vessels nodules of small size have a very serious effect, for it takes but a small projection to reduce the diameter of the lumen by one-half or more. These nodular masses occurring on the inner surface of the vessels are an overgrowth of the tissues and are not the outcome of degenerative processes. Their very nature suggests that they are the products of a very low-grade inflammation in which the growth of the local tissues is the most outstanding feature. This is particularly true in the kidney, where the process of the inflammatory reaction can be quite easily followed and where it is not difficult to demonstrate that the arterial lesion occurs synchronously with other inflammatory processes within the kidney structure. In the brain and in the heart it is not so easy to demonstrate the sequence of events in the development of the nodular endarteritis, but we believe that the process is similar to that seen in the renal vessels; in both the heart and the brain these lesions are commonly subject to secondary processes of degeneration. when we meet with cases which show advanced scleroses of their coronary and cerebral vessels, we are dealing with only the end stages of a process wherein atheroma forms a conspicuous part. Atheroma, however, is a stage secondary to the nodular thickening and is not a pathological process it itself.

In the heart, the nodular endarteritis produces its effect by diminishing a circulation which is so essential for the active cardiac tissues. Any disturbance of nutrition in the myocardium has its influence upon the cardiac function and the degeneration which takes place in the muscle fibres soon leads to local areas of fibrosis. The influence of the disturbed circulation is manifested through cardiac irregularities and distress, while the vessels themselves give no direct evidence of their incapacity. In the brain, on the other hand, where the cerebral vessels are so loosely suspended in a delicate stroma the vascular lesion not only influences the circulation through the vessels but there is also the direct influence of the nodular endarteritis upon the strength of the vessel wall. Small aneurysmal dilatations are not uncommonly found in the

fine branches of the cerebral arteries; dilatations which often given way with hæmorrhage.

We have so far pointed out the important effects arising from infection and work upon the structure of the arterial walls, and we have intimated that these two factors are amongst the most important causes of some form of arteriosclerosis. In the past, considerable stress was laid upon various types of intoxication as factors in arterial disease. Some of these intoxications play an unimportant part in the development of sclerosis at the present time. Lead poisoning has always been mentioned, but its relationship has never been proven. The same is true of alcohol, for whose presumed injuriousness we can find no support in the study of human tissues or by animal experiment. With tobacco it is somewhat different, for although it is not possible to point to any particular type of lesion in the human body as a consequence of chronic nicotine poisoning, it has been shown that this substance produces marked arterial lesions when introduced into animals over considerable periods of time. There is, however, insufficient evidence, even as adduced through animal experimentation, to demand a prohibition on the use of tobacco.

There is one phase of our problem which still eludes analysis and interpretation. I refer to the relation of high blood-pressure to arteriosclerosis. Some years ago, Sir Clifford Allbutt stressed the importance of high blood-pressure as the most important factor in the production of arteriosclerosis and since his exposition of the subject, this theory has found many adherents. The problem is not as easy of analysis as might at first sight appear. It is true that arteriosclerosis and high blood-pressure frequently go hand-in-hand, but it is equally true that the gradation of arteriosclerosis and high bloodpressure are by no means parallel. Furthermore, I would point out that high bloodpressure is not associated with a constant type of arterial lesion, and even in the discussion by Sir Clifford Allbutt he points to arterial lesions of a variety of kinds each of which he is willing to associate with hypertension. Furthermore, as is well known to all, the cases are not so uncommon where an advanced arteriosclerosis in the peripheral and visceral vessels is unassociated with an increased blood-pressure; and the reverse is also true that not a few cases of hyper-

tension show little or no evidence of arterial disease. In a study of a few cases of idiopathic hypertension which have come under our notice and in which there was no evidence of any of the common forms of arteriosclerosis, we were interested to find that the smaller arteries throughout the body showed evidence of hypertrophy of their middle coat. This was what might be expected, for just as we find that the cardiac muscle will undergo hypertrophy when there is an increased demand for work over a considerable period of time, so too the arteries having to contend with an increased blood-pressure compensate for the carrying out of this work by developing an hypertrophy of the musculature of the media. This is, however, not a form of arteriosclerosis; it is merely an adaptation on the part of the arterial wall to care for an increased stress of work which has progressed slowly but steadily, giving the wall sufficient time to allow a compensatory overgrowth of its active tissues. We have no reason for believing that hypertension by itself will cause any peculiar nodular thickenings of the intima such as are commonly found in the vascular scleroses. That hypertension is a very important factor in an individual who previously has developed a considerable arteriosclerosis and in whom the vessels are of weaker structure, goes without saying. Such individuals with coincident hypertension and sclerosis are endangered when the scleroses involve the vessels of the brain. But complexes of hypertension, arteriosclerosis, renal disease and cardiac disease are sufficiently common to allow us to study the individual components in each case, and to show that the causative factor may act on one or more structures at the same time, while one tissue compensates by hypertrophy and function for the shortcomings of the other.

It would seem in our discussion that we are setting aside all the theories of the past and yet are not establishing in sufficient confidence new theories to take their place. This may be true and I believe has its advantages, in that we may seek to understand the nature of the processes of disease rather than to bring forward intricate and stereotyped theories which are only to be offered for academic discussion. The theories of Thoma and Jores have had their day and we again come back to some of the older ideas of Virchow and Koester which point to types of inflammatory reactions as the most important factors underlying arteriosclerosis.

The Bison in Canada.—Canadian successes in the effort to preserve from final extinction the last herds of American bison were reported before the mammalogists, by R. M. Anderson, chief of the division of biology of the Victoria Memorial Museum at Ottawa, Canada. Beginning with the low-ebb year of 1889, when it was estimated that in the United States and Canada there were only about a thousand survivors of the once vast herds of bison, Mr. Anderson sketched the share of the Canadian government in the work of rescuing the species. The Canadian government received as a nucleus three animals from Texas in 1897, thirteen from the Lord Strathcona herd in Manitoba in 1898, and two from the Corbin herd in New Hampshire in 1902, all being sent to Banff. In 1907 the government purchased the entire Pablo herd in the Flathead reservation in Montana, 702 head

in all, 410 of which were placed in Elk Island Park and the balance in the Buffalo Park at Wainwright. In 1909, 325 head were transferred from Elk Island Park and twenty-seven head from Banff to Buffalo Park, and in 1910 thirty head were purchased from the Conrad Estate of Kalispell, Montana. The Buffalo Park comprises a fenced area of 160 square miles at Wainwright in which the buffalo have increased rapidly under protection. In 1913 there were 1,118 head and in 1915 over 2,000. In 1922 they were taxing the resources of the park and a number were killed. The herd was further thinned in 1923 and about 2,000 animals were killed and the meat and hides sold on the market. At the present time-1925-the Canadian government has about 8,000 buffalo at Wainwright, 348 at Elk Island Park and 22 at Banff, a total of about 8,370 head.

An Address

ON

MAN'S STRUCTURAL IMPERFECTIONS

Abstract of the Lloyd Roberts Lecture to the Royal Society of Medicine.*

SIR ARTHUR KEITH, F.R.S.

RETWEEN the activities of Archdeacon Paley and those of Elie Metchnioff lies the greater part of the nineteenth century. At its beginning we find the archdeacon extolling the perfections of the human body, and by the close of the century the alert brain of Metchnikoff had discovered that the human body, although supposed to be a perfect organism, had many blemishes and imperfections. This evangelist of a new doctrine had approached the study of man's body by an untrodden pathway. On his arrival at the Institut Pasteur in 1888, being then fortythree years of age, he set himself to investigate the means by which the human body keeps at bay the swarming hosts of micro-organisms which find a natural habitat in its internal passages. He recognized man's body as a battlefield, and as he proceeded with the investigation the conviction grew upon him that the chances of the body's success were imperilled by a heritage of structures, which had become out of date and useless. In the Wild lecture given in Manchester in 1901, he declared that man was being killed by his intestinal flora, and that his large intestine had not only become useless, but was a positive menace to the rest of his body.

Between the time of Paley and Metchnikoff lie three great additions to our knowledge, which we should take note of, if we are to understand how it was possible for the one to praise the perfection of man's structure at the beginning of the century, and for the other to condemn it for its imperfections a hundred years later. First was the discovery that man's body was an aggregate or society of living microscopical units. Metchnikoff approached the study of this complex human organism through the study of the simpler aggregations or organisms represented by the bodies of the lower invertebrates, and by this approach he discovered that certain units of

such societies retain their freedom, thus permitting them to act as scavengers or phagocytes.

Second came Darwin's discovery; Metchnikoff was a convinced evolutionist, and therefore deemed that the anthropoid phase of human evolution called for many changes to render it fit to deal with the altered dietary of civilized man.

In the third place came Pasteur's discovery, the most potent of the three, and under the influence of Pasteur's revelations Metchnikoff came to think that the destiny of man lay in the issue of the everlasting contest going on between the living tissues of the body and the swarms of invading hosts which threatened their life.

Twenty-two years have elapsed since Metchnikoff's *La Nature Humaine* first appeared, and I propose to discuss how far his doctrine of strucural imperfection has stood the test of time.

More precisely than was possible when Metchnikoff wrote, we realize to-day that the most critical chapter of man's long history opened with the discovery of agriculture, a discovery of but yesterday, if we reckon it on a geological scale. Agriculture revolutionized the conditions of human life, and made modern civilization possible. It would appear that this revolution in the condition of man's life was initiated either in Mesopotamia, or Egypt, or in some neighbouring district, not more than 8,000 years ago. It is certainly not more than 5,000 years since agriculture began to be practised in western Europe. Ninety per cent of the population of these islands are the descendants of men and women who, 200 generations ago, were dependent on the natural harvest provided by shore, river, forest and moorland. If we could go back many generations we would find an ancestry living on the soil, and off the soil. The alimentary system evolved to meet the needs of our primitive ancestors has now to accommodate itself to a modern dietary. Civilization is submitting the human

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body to a vast and critical experiment. Not only the alimentary system is being subjected to new conditions, but also the bony and muscular framework of our bodies are being subjected to novel stresses. Our forefathers when they arrived in western Europe were hunters, and under the stress of civilization, the hunter's body has to serve modern needs. Civilization has laid bare some of the weak, imperfectly developed points in the human body, but the conditions which have provoked them are not of nature's choosing, but of man's. As our manner of living increases in comfort the calls on our heat-regulating mechanism become fewer in number and less urgent in character. Our primitive forefathers lived in the open; their bodies, scantily clad, were exposed to sun, rain, wind and storm. Such a mode of life throws an increasing burden on the machinery which regulates body temperature. Modern civilization so far as temperature is concerned, tends to make the human body a hothouse plant.

Metchnikoff perceived that civilization had plunged man's body into a new environment, and he charged against the evolutionary powers presiding over man's destiny sins of omission, and sins of commission. The first complaint on his list of omission was that we have not shed from our skins the last remnants of an anthropoid pelage; hair on the body is useless and a source of disease. Whether or not a completely hairless body is desirable, we leave as a moot point. A hairless breed of dogs has been produced. In this matter the Caucasian has been outstripped by the Negro and by the Mongol. A fœtus in the womb draws its heat from the mother's body, and has no need of a hairy covering until the period of birth arrives. A stage of development evanescent in the fætal anthropoid has become permanent in us. Many of our structural features have come to us in this way and fætal inheritance becomes more and more possible for man, because civilization tends to make man's world into a protective womb.

Another example of the failure of man's body to adapt itself to present requirements is found in some of the conditions of man's alimentary system. In 1903 Metchnikoff wrote that not only the rudimentary appendix and the cæcum, but the whole of the human large intestine was superfluous, and their removal would be attended with happy results. Since Metchnikoff penned

this sentence, the operation of complete colectomy has been performed on many thousands of men and women, but I doubt if any of the surgeons who performed the operation would now maintain that a man or woman rendered colonless, enjoys better health than the average intact individual. On the other hand, we must note the ever growing demand for patent purgatives, to be convinced that there is as Metchnikoff maintained, a grave disharmony between the functional capacities of our large intestine, and the dietary which modern civilization compels us to adopt. Since Metchnikoff first promulgated his belief that the appendix, cæcum and colon had become superfluous organs in man's body, our knowledge regarding the evolution of these structures has been increased. It apparently was for purposes of economy that the large bowel gradually developed in the earliest vertebrate forms known to us. With the evolution of land-living and air breathing animals, much of the expenditure involved in potent digestive juices was saved by the utilization of bacterial digestion. The large bowel appears to have been added to the original intestine for this purpose.

As we first know it in fishes, it is a mere diverticulum from the hinder end of the gut, and appears to take no part in the digestion of food. As it develops in length its epithelium forms a glandular structure which has all the appearance of an organ designed for the supply of an internal secretion. This secretion whatever it may prove to be, is carried to the liver by the inferior mesenteric vein. In the mucous membrane of the human large intestine we find embedded in the stratum of reticular tissue many millions of these minute test tube glands, the glands of Lieberkühn. No one who has noted the structure and setting of these glands and the finer changes which their cells undergo in the course of action, can believe that their sole function is to supply a lubricating fluid for the intestine. They have all the appearance of supplying an internal secretion and the evolutionary history of the colon favours such an inference. The reticular stratum of the colon which Dr. Scott Williamson regards as the most important constituent of the mucous membrane, represents a spleen of considerable size. Indeed just as the liver and pancreas represent extrusions of highly specialized parts of the intestinal epithelium, the spleen represents a specialization of the reticulo-endothelium of the alimentary canal. It is also to be noted how closely the great intestine is linked to the central nervous system both by afferent and efferent pathways. When we take all these considerations into account we must conclude that the large intestine in man must not be regarded as a useless or superfluous organ—a mere cesspool or sewage pipe as some have called it, but one which we in our ignorance are maltreating.

Darwin also regarded the appendix as one of man's vestigial structures, and Metchnikoff accepted this verdict without demur. Some anatomists, however, refuse to regard it as a useless structure. Every child is born with a fully and well developed appendix, which varies in length, round a mean of 35 mm. Ribbert's investigations showed that among the Swiss the appendix reached its maximum length, 97 mm. by the twentieth year. Dr. Garcia and Dr. Salloza measured the length of the appendix amongst the Filipinos, a people living chiefly on a vegetarian dietary. They found that by the twentieth year the appendix of this people attained a length of 81 mm., but its maximum length, 96 mm., was not reached until the fif tieth year. An organ which increases in length until the twentieth year, and even until the fiftieth year, does not merit the name vestigial. In adult gorillas, chimpanzees and orangs the appendix usually attains a length of 150 or 160 mm., nearly double the length of the human appendix. We have no evidence to lead us to believe that anthropoid apes suffer from appendicitis in their natural habitat. They do, however, become subject to this disease when kept in confinement. Of sixty-one chimpanzees dying in captivity, ten suffered from appendicitis. The appendix apparently breaks down under the conditions of modern civilization, not because it is vestigial but because of its inability to withstand the conditions to which it is being exposed. Sir William Gowers used the term abiotrophy to denote a condition of premature senility on the part of an organ or structure. In this sense the appendix becomes an abiotrophic structure, one which is apt to suffer from a disordered life history, and which in the majority of Europeans becomes atrophic or senile when other parts of the body are in full vigor. Sir Arthur

Keith thinks that of a thousand people who reach the age of seventy, only five hundred retain their appendix in a healthy functional state. In the other five hundred the appendix undergoes more or less premature atrophy. In this, the appendix keeps company with all structures which are of a lymphoidal nature; the tonsils, the thymus, the lymphatic glands and Peyers patches have similar life histories, but no one would describe them as vestigial or rudimentary.

The eye also, which is man's chief organ of sense, becomes the subject of wrong growth or abiotrophy. In 1,000 men or women over the age of twenty-five, we shall find that about 150 of them suffer from a degree of myopia which prevents them from seeing distant objects clearly, and yet in all of them the eye was normal at birth. During the period in which the eye is undergoing growth and development a process of the most complex kind is going on. In a few, myopic changes appear by the fifth year. The highest rate of incidence for these changes takes place as puberty is reached and passed. We cannot believe that our hunting ancestors for whom distant sight was so vital, suffered in so large a percentage from defective eyesight. Short sight, Dr. John Kirk states, is certainly a disorder of growth. The great problem is to discover, not why 15 per cent of our population suffer from it, but why it does not occur in the remaining 85 per cent. No structure in the human body illustrates abiotrophic change so well as the lens of the eye. By the age of forty-five its elasticity has become so reduced in most of us that we have to seek the aid of spectacles. Some time ago Mr. Ernest Clark examined the eyes of 1,200 people of all ages, and charted in graphic form the condition of the lens. From this chart it can be seen that there is much variability as regards the retention of this elasticity. It is with the lens of the eye as with the appendix, abiotrophy sets in prematurely in some, in others the change is delayed.

The consideration of this functional failure of the lens of the eye brings us to a problem which fascinated Metchnikoff—"What is the term of life natural to man?" Metchnikoff inclined to place this at 100 years, and considered that if we escaped accident and disease the inherent vitality of our tissues was sufficient to

make a centenarian of everyone. Yet at the age of forty-five the lens of the normal man is already old; it has reached the term of its full utility. We have no reason to suppose that civilization has shortened or is shortening its period of life's usefulness. Thirty years ago I made an intensive study on the age changes of the teeth and skulls of the great anthropoid apes, and came to the conclusion that very few of them reached the fifth decade of life. When we consult the rates of mortality now prevailing in Europe we find that a sudden rise sets in during the fifth decade, and this rise assumes a steeper and steeper gradient with every subsequent decade. All these facts seem to indicate that fortyfive was the span of life allotted to man, when he was the blind slave of nature. Civilization now permits many men and women to live the span of two such lives. Whether it would be an advantage for civilization for all to live to be centenarians is perhaps a moot point.

I have touched only upon the fringe of a great subject, and have left undiscussed numerous imperfections, which civilization has made manifest in structures concerned in the maintenance of posture, and in those which are concerned in the circulation of the blood. I have

said enough, I believe, to convince you that Metchnikoff was right when he declared that civilization had launched man on a great experiment. From this experiment there is no turning back. We cannot return to the condition of human life which prevailed in this country 6,000 years ago. We must go on. Seeing how differently we are now circumstanced in every relationship of life, in food, in drink, in shelter, in warmth, in occupation and in amusement, the wonder is not that structural imperfections and functional disharmonies should develop in a moderate percentage of us, but rather that so many of us should escape harm altogether, and enjoy good health. Metchnikoff hoped that science might discover some short cut for man's escape from all the ills with which civilization threatened him. I believe that science will find a means of escape, but not by Metchnikoff's way. The solution of our problem of life is a fuller knowledge of the use and work of those parts of our body most apt to give way under our modern ways of living. When we have replaced our ignorance by real knowledge we shall be in a position, not to adapt our bodily structures to our mode of living, but our mode of living to our bodily structures.

Renal Function—Experiments were made by Wilbur H. Haines and L. F. Milliken, Philadelphia, on animals to determine the effect of morphin and atropin on kidney function, when injected as an adjuvant prior to ether anesthesia. Dogs were subjected to deep ether anesthesia for thirty minutes. Indigocarmin was then injected and the anesthetic was continued. In each case the dye did not appear in the urine within twenty minutes, nor until a variable time after the ether was stopped. About a week after the first experiment, each dog was given a light dose of morphin and atropin by hypodermic injection. One-half hour later ether was started, and the dog was kept under very profound anesthesia for thirty minutes. At the end of the thirty minute period of anesthesia, indigocarmin was injected intravenously, and in every instance the dye appeared about as soon as would have been the case had the dog not been under an anesthetic. It appears, therefore, that a sufficient dose of morphin and atropin, given thirty minutes before ether anesthesia, prevents the usual ether inhibition of kidney function in dogs, so far as this may be determined by the indigocarmin test. If the action of these drugs is similar in man, then there is a very positive indication for their use as an adjuvant to ether anesthesia, especially in urologic surgery. In experimental animals, the use of morphin and atropin before ether anesthesia seems to influence kidney function temporarily in the same way as denervation of the kidneys. If this is true, one might reasonably expect these drugs to prevent reflex anuria following urologic operations, or at least that their use might lessen the incidence of this complication.—Jour. A. M. A., Dec. 12, 1925.

OSTEOPATHY AND CHIROPRACTIC

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IN a recent number of the British Medical Journal there appears an article on the subject of Osteopathy and Chiropractic in Medicine, by Sir H. J. Waring, Senior Surgeon of St. Bartholomew's Hospital. The writer of the article was led to the selection of this subject for his presidential address at the opening meeting of the London Medical Society because of the efforts that are being put forth by these cults to secure some sort of legislative recognition or partial license in Great Britain. It seemed to the lecturer to be a matter of the first importance that the members of the medical profession, the legislators and through them, the people, should have a clear understanding of the nature and theory of these so-called systems of medicine. There has been much loose talking on this subject. To have a definite statement regarding the nature of these cults and an authentic history of their origin was the first consideration. Accordingly the writer proceeds to lay before his readers in the clearest and in the fairest and most dispassionate way the origin and theory of osteopathy. Chiropractic is simply a later and slightly altered version of osteopathy.

The origin of osteopathy, and of course chiropractic, is of very recent date.

The great revolutionary discovery was that all diseases were due to displacements of the bones of the spinal column and through these displacements pressure was exerted upon the blood vessels which pass out from the spinal column by way of the intra-vertebral foramina, thus interfering with the circulation of the blood to various parts of the body, or to the internal organs with consequent alteration and disturbance of function. This is the theory upon which osteopathy rests. Chiropractic has the same vertebral displacements but it is the nerves that are impinged leading to congestions through vaso-motor disturbances. Chiropractic, it is pointed out, was the discovery of a layman

named Palmer, a neighbour of Still, the pioneer and originator of the theory. Since then there has been a keen competition between the two bodies. Although they preach the same gospel no love is lost between the two. The osteopath affects a superiority over his more recent rival and is somewhat pharisaical in his attitude towards him. They are, however, be it noted, both flourishing in all parts of the United States and Canada. The cause of disease whether it be tuberculosis or tetanus, appendicitis or typhoid fever is found in displacement of the spinal vertebræ. That these displacements are difficult to demonstrate by x-ray photography or in any other way makes no difference; neither does it matter if the cause of the disease be already well known. For example it is the displacement of the cervical vertebræ which alters the circulation to the tonsils and thus enables the germs of diphtheria or tonsillitis to establish themselves. Similarly in diabetes, it is the displacement of the dorsal vertebræ which primarily alters the function of the pancreas. The theory applies universally. The spinal column, as the osteopath or chiropractic sees it, is a most precarious structure. The child's column of play-blocks is scarcely more unstable. At times, too, displacement seems to occur with extraordinary frequency, and to recur with the slightest provocation. There are many thousands of people in the United States and Canada who find it necessary to repair to their osteopathic or chiropractic attendant at very frequent periods in order that their spinal vertebræ may be properly adjusted. Usually a number of adjustments are required before the refractory vertebra can be returned to its proper place. Sometimes, too, there seems to be a disposition on the part of the vertebræ of an entire family or school it may be to become displaced simultaneously as in the case of influenza or whooping cough for example. The metaphorical expression "having backbone" must have altered significance to the practitioners of these cults.

Turning now to the practice of osteopathy and chiropractic, there seems to be a disposition on the part of many to believe despite the fantastic theory which they consider to be absolutely false, that these manipulations even if they do not slip the displaced vertebræ back again, yet in some way frequently relieve conditions such as lumbago. Even if the theory be so fantastic that no one thinks it worth while seriously to consider it, they say that there might be something of value in the practice of it and would favour a special registration in order that this something may not be lost. The assumption in the minds of these people is that if the osteopath or chiropractic were asked to conform to the requirements of the regular course in medicine he would either forget or abandon wilfully the knowledge which he had acquired. The president of the London Medical Society in his address evidently pictures the osteopath and chiropractic as very closely akin to the bone-setter who has flourished so long in the British Isles, and whose field of operation is in the treatment of fractures, contractures, adhesions, stiff joints and the like. He does not appear quite to understand the scope of osteopathic practice on this side of the Atlantic. We are a stage further on here.

A few months ago we had in Toronto the annual meeting of the American Osteopathic Association. Several hundreds of osteopathic practitioners were assembled from all parts of the United States. They comprised physicians, surgeons, gynæcologists, ophthalmic surgeons, obstetricians, radiologists, laryngologists, bacteriologists, etc. A medical convention was held in every way following the style of the American or Canadian Medical Association. Sections were held on medicine, surgery, eye and ear, nose and throat, gynacology and obstetrics, bacteriology, etc. Every member had the title of Doctor (D.O.). Papers were read and published more or less extensively in the city papers on the technique of "Enucleation of the tonsils," etc. etc. Discussion took place on the use of insulin, with graceful complimentary reference to Dr. Banting and the University of Toronto. Tribute was paid to the value of research. Many of the colleges it was announced had insulin professors on their staff. This was not a convention of

bonesetters, Swedish movement practitioners and masseuses, but of practicing physicians and specialists, all enrolled as subscribing to the theory of osteopathy, everyone of whom had by that means succeeded in evading the requirements of the regular course in medicine, and was now practising what he pleased.

A few weeks earlier the Ontario Medical Association had met in the same hotel, every member a university graduate in medicine, subscribing to no theory, but all having a liberal education followed by a five years' course in university and hospital, their practice being based upon a knowledge of the fundamental sciences of anatomy, physiology, chemistry and of the nature of disease.

The writer in the British Medical Journal evidently accepts at full value the statement that osteopathic colleges require a three years' course of instruction. Our recollection of the findings of the American Medical Association is that in many of these colleges the course was completed in from three to six months. In Ontario, of the 1,000 or more osteopathic and chiropractic practitioners, the majority continued in whatever was their occupation, taking the so-called course by correspondence.

It may be asked, does the osteopathic and chiropractic practitioner believe in the theory which he professes? The evidence is very much against him, as witness the convention to which I have referred, with its papers on the use of insulin. What he does believe, however, is that it is a convenient and very cheap way of getting into the medical profession. He professes the belief that all disease is the result of displacements of the spinal vertebræ; has no difficulty with his preliminary education or matriculation, takes the course of a few months by correspondence if desired, forwards his fee of \$100 or \$150 to the college and receives in return his degree of D.O. He now relinquishes his present employment, gets himself a brass plate upon which he has inscribed Dr.— Osteopathic Physician, Surgeon or Specialist, as he may choose. There is an idea prevalent that osteopathy and chiropractic are good for a limited field of practice, stiff backs, joints, etc.; consequently some people favour a limited license, assuming that the osteopath will confine himself to manipulative procedure, and that somehow these suitable cases will be of easy recognition.

This is entirely a mistaken view. Having assumed the title of doctor he takes on all the functions of a doctor. If he elects to be a surgeon, throat specialist for example, he goes to some large centre, sends in his card as Dr. —, takes on the course and becomes by the apprenticeship method a surgeon or a specialist in whatever specialty he may elect.

In the discussion with reference to the recent amendment to the Ontario Medical Act, the representatives of the osteopathic and chiropractic cults were asked by the legislature to formulate their requirements. They presented a written request to be permitted to use anæsthetics, antiseptics, hypnotics, stimulants and anodynes.

In view of our experience with the adherents of these cults on this continent we believe that Sir H. Waring's advice to give no special favours but to have one portal of entry into the medical profession, to be absolutely sound. In no other way can the public be protected. It seems the acme of stupidity to spend untold treasure and labour in the endeavour to eradicate disease, and in the field of preventive medicine, and at the same time to permit men and women of no education to teach that it is all a myth; that diphtheria, smallpox, tuberculosis and tetanus are all due to displacement of the vertebræ.

The recent amendment of the Ontario Medical Act provides for one portal of entry to the medical profession. Having complied with the requirements of the act, it is assumed that the candidate will have a reasonable basis for measures he advises for the relief of conditions which he may be called upon to treat. Those who advocate the giving of a limited registration to the chiropractic or osteopath on the assumption that he will apply himself to the relief of certain conditions only, have a curious view of the art of diagnosis. To them it is a very simple matter to select certain cases and to decline others. They forget that with the professors of these cults it is all a matter of the backbone. Then again where will it end. It may happen that just as chiropractic followed osteopathy, so in a few years or at any time another brilliant discovery or indeed a number of them may appear and may carry conviction to the minds of a great number of people. The arguments would be equally strong in favour of granting special favours to them.

There is a sort of charm or a strange attraction in the title of "Doctor." People will resort to the bearer of this title no matter how preposterous the theory he professes. Recognizing this curious fact, the recently passed amendment to the Ontario Medical Act explicitly forbids the adoption by anyone proffering his services in the treatment of patients, of the title of "Doctor" "Physician" or "Surgeon" unless a university graduate and legally qualified under the Medical Act. Hitherto there has been the greatest freedom in the adoption of this title by all sorts of irregular practitioners, osteopaths, chiropractics, naturopaths, optometrists, etc. etc. All very confusing. How was the public to distinguish between the "doctor" having the university degree and licensed under the Medical Act, and the "doctor" who is a chiropractic, osteopath or optometrist, who had simply assumed the title. We believe that in this matter of the restriction of the title "doctor" to legally qualified doctors only the Ontario government has acted wisely indeed.

Finally, it is necessary on the part of the members of the medical profession to think clearly and have a clear perception of the point at issue. One sometimes hears from members of the medical profession expressions of opinion with regard to the possibility of there being some good in the various methods of treatment carried out by irregulars as though that were some justification or were the point at issue. The real point at issue is whether we are to give special privileges to these people. Any sort of registration or recognition no matter how limited is of great value to the quack and is most misleading and unfair to the public. Be it remembered too that it is the public that pays. At the present moment there are more than a thousand irregular practitioners, men and women, mostly chiropractors and osteopaths, who are living off the people of the province of Ontario. The other provinces of the Dominion have no doubt proportionately an equal number of practitioners of these cults. It will thus be seen what an enormous financial burden is entailed by the support of this army of self-styled "doctors."

How long would the department of agriculture in this or in any other civilized country tolerate a similar condition of things in the field of veterinary science. Would a cult of veterinarians be permitted to teach the farmers of this

country that tuberculosis, goitre, tetanus, rabies, anthrax and a host of other diseases which the domestic animals have in common with human beings are due to displacements of the animals' backbone and that appropriate treatment would be by spinal adjustment. The parallel is absolute. In that case, however, the commercial interests involved might confidently be expected to make short work of any such veterinarian cult.

SOME EFFECTS OF ANOXÆMIA ON THE CIRCULATION

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THE rhythmic variations of arterial pressure known as Traube-Hering curves were regarded by Traube as being due to the irradiation of impulses from the respiratory centre. Their occurrence in asphyxia, however, raises the question whether the altered character of the blood may be responsible for the production of these waves, and Halliburton¹ has suggested that the Traube waves are vasomotor in origin, the rhythmic action of the vasomotor centre being evoked by the accumulation of carbon dioxide in the blood.

The primary object of the present enquiry was to determine whether the appearance of Traube² curves was due to accumulation of carbon dioxide or to lack of oxygen. In the course of the enquiry the opportunity was taken to examine the effect of a slowly-induced anoxemia on the pulse rate, the arterial pressure and the output of the heart.

Methods.—All experiments were carried out on cats. In most of the experiments decerebration was performed under full ether anæsthesia and the experiment was then made on the decerebrate animal; in a few others, experiments were carried out under ether anæsthesia, supplemented by urethane (1 grm. per kilo bodyweight) injected subcutaneously.

The anoxemia was induced by allowing the animal to breathe in and out of a bottle, of about three litres capacity. The bottle was connected with the tracheal cannula by a short piece of tubing, and a low tracheotomy was performed in order to minimize dead space. The expired carbon dioxide was absorbed by a strong caustic soda solution placed in the bottom of the bottle. The bottle was also connected with a large piston re-

corder and the respiratory movements recorded on a drum. Another tube opening into the bottle was attached to a bottle containing pure oxygen, and means were adopted whereby the amount of oxygen entering the "re-breathing bottle" could be accurately regulated. In some of the experiments the fall of pressure within the bottle, consequent upon its diminishing content of oxygen, was counterbalanced by the addition of caustic soda solution from time to time. All the experiments in which this method was employed were carried out on decerebrate animals. The arterial pressure was noted at frequent intervals; the pulse rate was counted either by observation of the arterial tracing or by palpation of the heart through the chest wall.

By means of the method just described it was possible to induce anoxemia very gradually, the time taken for the appearance of cyanosis or other signs of anoxemia being usually half an hour. Further, it was possible by admitting oxygen in suitable amount after the occurrence of anoxemia to maintain any given degree of anoxemia for as long as was desired. Control experiments in which anoxemia was prevented by the continuous addition of oxygen to the air in the bottle showed that the respiration and circulation remained normal, and that the carbon dioxide expired by the animal was effectively and completely absorbed by the caustic soda solution.

Results.—When anoxemia was induced by the method just described the arterial pressure and respiration were unaffected for some time. After ten or fifteen minutes some deepening in respiration occurred. The breathing, generally after another fifteen to twenty minutes, grad-

ually became deeper for several minutes and then reached a relatively constant level. If the anoxemia was allowed to become extreme, signs of failure on the part of the respiratory centre made their appearance. The general level of the arterial pressure remained constant for a time (generally from forty-five minutes to one hour) though it showed a slight tendency to fall if anoxemia was prolonged. When the anoxemia became sufficient to give rise to cyanosis of the mucous membranes Traube-Hering waves almost invariably made their appearance.

If at this point oxygen was admitted to the bottle at such a rate as to keep the degree of anoxemia comparatively constant, the Traube-Hering waves persisted almost indefinitely. If, however, the anoxemia was allowed to progress the Traube waves disappeared after a short time, and the arterial pressure slowly fell and the respiratory centre in some instances showed signs of impending failure.

In some experiments blood samples were taken while the Traube curves were present and the oxygen saturation of the blood was determined. In two sets of experiments the oxygen saturation of arterial blood was as follows:

TABLE I
(ONE OF TWO EXPERIMENTS)

Time	Condition of Experiment	Vols. of O ₂ per 100 c.c. blood
July 14 12.37 12.38 3.12 4.2	Normal Anoxæmia commenced. Anoxæmia. Anoxæmia	20.9 15.0 12.6

Before commencing the anoxemia, arterial blood contained 20.9 vols. of 0_2 per 100 c.c. of blood, two and a half hours afterwards 15 vols. and another hour later 12.6 vols. of 0_2 per 100 c.c. The percentage saturations at the times noted were 71 per cent and 60 per cent respectively. In a second experiment, the normal value for 0_2 was 20.5 c.c. and the percentage saturation 83 and 51 respectively after an interval of an hour and two hours. The actual figures were 17 vols. at end of one hour and 10.5 vols. of 0_2 at end of two hours.

In one or two experiments observations were made in which anoxemia was rapidly induced; this was effected by starting the anoxemia with a gaseous mixture already slightly deficient in oxygen. In these circumstances it was found that the Traube-Hering waves were either slightly developed or failed to occur. The relationship between the Traube-Hering curves and respiratory movements was noted and it was found that there is not necessarily any correspondence between the two. That there is no definite relation between the respiration and the appearance of Traube-Hering waves is shown by the fact that when the anoxemia is being produced small Traube-Hering waves make their appearance some little time before any periodic variation in depth of breathing can be noticed.

Influence of Carbon Dioxide.—Traube found that these waves made their appearance when the inspired air contained 20-30 per cent of carbon dioxide, and Mathison observed them when as little as 7 per cent of carbon dioxide was added to the inspired air. In the present enquiry a few experiments were made in which a comparatively small, percentage (approximately 2 per cent) of carbon dioxide was added to the inspired air; the amount was just sufficient to bring about fairly severe dyspnœadyspnæa rather more than that induced by simple anoxemia. In these circumstances the arterial pressure showed no Traube waves. The observations just described point therefore to the conclusion that the Traube-Hering curves are primarily due to an inadequate supply of oxygen to the vasomotor centre and that they are in no way dependent on changes in the activity of the respiratory centre.

Pulse Rate.—The production of anoxemia almost invariably led to gradual and progressive slowing in the pulse rate as is seen in Table II. The slowing of the pulse is not due to direct action on heart since it no longer occurred after section of the vagi; nor was it due to heart block unless the anoxemia was pushed to an extreme degree. It appears, therefore, to be the result of a direct stimulating action of oxygen lack upon the cardio-inhibitory centre, comparable with the stimulating effect of anoxemia on the vasomotor centre. Occasionally, as the anoxemia became very severe the pulse rate increased, and this stage was succeeded by heart block.

Output of Heart.—A few observations were made on the output of the heart, and since the chest was open a special method of inducing anoxemia was necessary.

It was found that with progressive anoxemia there occurred a definite increase in the output per beat. This was due, certainly, in part to the decreased rate of the heart. The heart rate before commencement of anoxemia was 180 per minute and the cardiometer displacement 11 m.m.; three-quarters of an hour after the onset of anoxemia the rate had fallen to 140 per minute, and the displacement had increased to 17 m.m. The product of heart rate and cardiometer displacement thus increased from 1,980 to 2,380 (not calibrated), suggesting that the actual minute volume was also increased.

Discussion of Results.—It is clear from the foregoing experiments that a moderate degree of oxygen lack, when induced in a decerebrate animal, has comparatively little influence on the efficiency of the circulatory mechanism; the only striking changes are the appearance of Traube-

Hering curves, and a slowing of the pulse rate; the output of the heart and mean arterial pressure are not so greatly affected, though prolonged anoxemia gradually lowers the arterial pressure. On the other hand Bazett and Corbett⁵, and Schneider⁶ and his co-workers have found that in normal men, anoxemia brings about a definite acceleration of the pulse, and increased output of the heart, but no change in systolic pressure. An increase in the output of the heart almost certainly implies the occurrence of vasodilatation in some part of the vascular system; and the excessive production of metabolites in the muscles and elsewhere during anoxæmia, giving rise to some loss of tone in the arterioles and capillaries, would adequately account for the increased cardiac output noted by these observers.

On the other hand the metabolism of the de-

TABLE II DECEREBRATE CAT

Time	Air Breathed	Effect on Circuit	D	
	Air Breathea	Blood Pressure	Pulse rate per minute	Respiration
2.44 2.45 2.47 2.50	Rapid anoxæmia	Slight Traube curves Traube-Hering curves Traube-Hering waves disappear	136 136 68 Pulse accelerates to more than 150	Normal Marked increase in depth Decrease in depth

PROTOCOL OF TYPICAL EXPERIMENT DECEREBRATE CAT

	Anoxæmia begun	Effect on Circulation					
Time		Blood Pressure		Respiration			
3.55 3.56 4.2 4.22 4.31 4.45		Great increase in amplitude of heart beat	150 150 150 132 126 102	Normal Slight increase in depth Marked increase in depth Marked increase in depth Slight increase in rate			
4.47 4.49	Marked anoxæmia	Traube-Hering waves appear Traube waves persist. Increased amplitude of heart beat	96 84	66	66	66	"
4.50 4.53 4.55 5.0 5.7 5.13 5.16 5.19 5.20 5.23	Little O_2 supplied. Less O_2 supplied. O_2 supplied. Less O_2 .	Traube waves disappear. Decreased amplitude of heart beat. No Traube waves. Increased amplitude. "" Traube waves marked. "" Traube waves disappear. Traube waves appear. No Traube waves.	102 106 90 90	66 66 66	66	66 66 66 66	66 66 66

cerebrate animal is so much reduced that a considerable degree of anoxemia might well be compatible with a supply of oxygen sufficient, or almost sufficient for the greatly diminished requirements of the muscles in the decerebrate animal. In these circumstances vaso-dilatation, and consequently an increased venous return and output of the heart, would not necessarily occur. This at least appears the most probable explanation of the difference between the observations of Bazett, Schneider and others, and the results obtained in the present enquiry.

Pulse.—The slowing of the pulse rate observed when anoxemia was gradually produced indicates that the primary effect of oxygen lack is on the cardio-inhibitory centre, and that the influence of the anoxemia on the discharge of adrenalin from the suprarenal glands was too slight to affect the pulse rate, except occasionally as a late phenomenon. It is suggested therefore that the acceleration of the pulse noted by Bazett and Corbett may be due in part, at least, to influences reaching the cardio-inhibitory centre from the higher portions of the brain—these impulses in the conscious individual being either emotional in origin or per-

haps secondary to the stimulating effect of oxygen lack upon the cerebral cortex. It is also possible that in the conscious individual the suprarenals may be much more responsive to anoxemia than they are in the decerebrate animal. A further possibility is that the acceleration may be dependent on the increased filling of the heart which calls into play the accelerator mechanism.

Summary.—Anoxæmia, uninfluenced by accumulation of carbon dioxide, in decerebrate cats results in appearance of Traube-Hering curves, a gradual fall of blood pressure, slowing of the pulse rate and an increased output of the heart per minute.

The respirations gradually increase in depth and rate and sometimes show rhythmic variations; during prolonged anoxemia the respiratory centre shows signs of failure.

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Impacted Calculi of the Ureter.-The treatment employed and the results obtained in sixty cases of impacted calculi of the ureter are presented by Alexander Hamilton Peacock, Seattle. He says that while many ureteral calculi will pass through the ureter and be safely conducted to the bladder, a number of them will become impacted in the ureter. They are held in the ureter very often by such pathologic conditions as stricture, the size of the calculus, or the rough and crystal-like surface of the stone. The impacted calculi often remain in the ureter for years, and in this series of cases the average length of time was nine years. A calculus, once impacted, blocks off the urine, produces pain, pressure, dilatation of the ureter and renal pelvis, keeps up inflammation of the mucuous membrane, and in time impairs the function of the kidney. These impacted calculi cause the patient to suffer intermittent or continuous pain for years, constantly threatening him with colic; as a result, the general health is markedly impaired. Stricture of the ureter plays a considerable rôle in the impaction of the calculi, being found in 18 per cent. of the cases. Contrary to previous teaching, I have not found a normal constriction of the ureter except in the lower third, where the ureter travels through the bladder wall. The staphylococcus plays an important rôle in the formation of the stones, as it was found in 47.5 per cent, of all the stone cases. Hematuria, either as microscopic or as red corpuscles, occurred in 94 per cent. of the cases. Sixty-seven per cent, of all the impacted calculi were in the lower third of the ureter. Impacted calculi are apparently a disease of middle life, the average age of the patients being 43 years. In 96 per cent. of the cases, the calculi were solitary. Ureteral dilation should be attempted first, as this method was successful in 50 per cent. of the cases. Extraperitoneal ureterolithotomy should be performed when ureteral dilation has failed. Journal A.M.A., Dec. 19, 1925.

CANCER AND RACE

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IN the Province of Nova Scotia are several counties in which certain racial elements largely predominate.

County	Population	Race	Per cent.
Pictou	40,851	Scotch	70
Richmond	12,577	French-	
		Acadian	65
Lunenburg	33,742	German	60
Shelburne		English	60 to 65

The populations and percentages above given have been obtained from the census of 1911 and 1921.

It was thought that from the cancer data of these countries some deductions might be made respecting cancer incidence, as affected by race.

The examination and calculations on which the accompanying graphs are based deal especially with two features of the problem.

1.—The relation of cancer deaths to all deaths. The number of deaths, one of which is a cancer death, has been computed for each county. This, it must be noted, is not the percentage of cancer deaths, but the figure which when multiplied by the percentage gives one hundred as a product in each case. Where the percentage is high, the figure which has been calculated is low and vice versa.

2.—The age at which cancer deaths take place, as it is apparently affected by the racial element.

—This age is obtainable with a fair degree of accuracy where the age of cancer onset is not. It is conceivable that treatment might retard the course of cancer development and might lengthen the interval between the onset and the fatal termination. This is, however, very difficult to determine, or at least to measure accurately.

It must be remembered that there is a general relationship between the cancer death rate and the age of the population. Cancer may be expected to be relatively infrequent in a country where the average age of the living is low. In turn, the average age at death is correlated in a general way with the average age of the living. There has been, it will be remembered, considerable controversy regarding the question as to the

actual or relative increase of cancer incidence. Are more persons now dying of cancer simply because preventive medicine is protecting them from diseases which in former times prevented them from getting into what might be called the cancer area? Is the apparent increase of cancer nothing more than proof of a relatively greater age of our population? There are those whose studies have permitted them to take either side of the question in argument.

In each of the graphs will be seen lines of reference, the solid ones, being those of the province as a whole. It will be seen that the average age of cancer deaths for the province has varied during the period from sixty-one to sixty-four years. With respect to the other reference line which shows during the period the number of provincial deaths, one of which is a cancer death, it will be noted that it is fairly regular, varying between the limits eighteen and twenty-five.

Pictou County.—This county, composed of persons of Scotch origin, shows a very consistent graph throughout the period.

1.—The average age of the Pictou county residents who die of cancer is, throughout the period, greater than the average age of the cancer decedents in the province as a whole.

2.—Throughout the period, there is a smaller number of other deaths to each cancer death in Pictou county than is the case in the province as a whole. In other words, proportionally there are more cancer deaths.

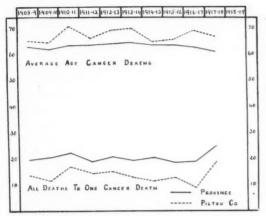
This is apparently an inconsistency in that there are relatively more deaths, but presumably a greater resistance, since the age of death (and therefore the age of onset) is relatively greater. This inconsistency may be only an apparent one, however, if the average age of the whole population of the county is greater than that of the province as a whole. There would thus be more persons in the cancer age groups in this county. It is difficult to procure this information about the age of the population.

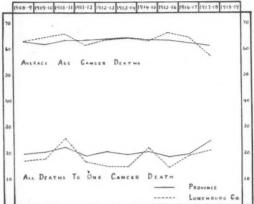
Richmond County.-In this county persons of

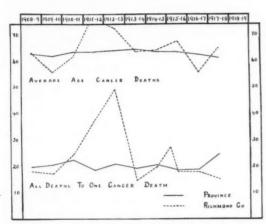
French-Acadian ancestry largely out-number or conversely a lower cancer death ratio than those of other origins.

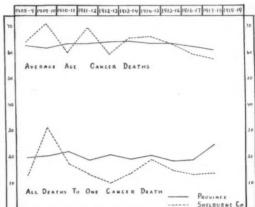
1.—It will be seen that there is nothing distinctive or significant about the line indicating the average ages of cancer deaths, the line conin the province as a whole. The graph shows

The graphs of the other counties selected show nothing significant.









forming in a general way with the reference

2.—This county has one of the highest death rates, infant mortality and tuberculosis death rates of all the Nova Scotian counties. We are therefore justified in assuming that the average age at death would be low, since many of its population die of diseases mainly affecting the lower age groups. There ought therefore to be a larger number of deaths to each cancer death,

Conclusions

1.—The graphs appear to show a reaction to cancer so far as our Scotch population is concerned, which is not seen in other racial stocks.

2.—It is difficult to arrive at definite conclusions, however, owing to the relatively small populations and deaths.

3.—A study involving larger numbers of population and deaths over a longer period is required.

ON THE USE OF THE LOW CERVICAL OPERATIONS FOR CÆSAREAN SECTION*

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MANY operations have been devised for use in Cæsarean section. To-day, I am going to discuss one of the operations in the lower uterine segment. There are at least twenty modifications of this operation and, for the complete literature, I would refer you to Schilling's article.

For the past ten years the low operation has been very popular in Germany. In Britain, Kerr and Holland speak highly of it, while in America, Hirst, Beck, Polak and DeLee have written concerning its merits.

The classical operation is unquestionably the most popular to-day, but the time has come to consider whether or not the results justify this popularity.

The increasing number of cases being reported where the uterine scar has given way after this operation, makes it imperative that we consider whether this is a necessity or not. Holland, after going over a large series of cases of Cæsarean section, found rupture in four per cent of the cases.

Some of these cases of rupture may be put down to inaccurate suturing of the uterine wound due to unskilful work, but this accident frequently happens after the most expert surgeon has done the work, and rupture of the uterine scar in a definite percentage of cases may occur without giving rise to alarming symptoms until the patient is in a desperate condition.

Bailey, of Manchester, reports a case of rupture of the uterine scar at eight months of pregnancy. This patient had had three previous Cæsarean operations. She complained of vague abdominal pain three hours before admission. Temperature and pulse were normal and there was some tenderness over the abdomen on palpation. At operation, the whole scar had given

way and the membranes had come through into the abdomen. The baby was dead.

In July of this year, I saw a case in consultation with a colleague. The patient had had two previous classical Cæsarean sections. She was warned of danger of rupture of the uterus, but refused to have an operation before labour started. She came into the hospital at fourthirty p.m., July 18, 1925. Temperature and pulse were normal. She had gone over the expected date of confinement. One ounce of eastor oil was given. At seven-thirty that evening she complained of some pain, but the pain was not at all severe. There was a slight show later on. Pains became quite strong at eleven o'clock and she was then persuaded to have an operation. On opening the abdomen it was found that the whole of the uterine scar had given way and the baby was floating free in the abdomen. Needless to say the baby was dead-A sub-total hysterectomy was done and the patient made a good recovery.

On looking at the area where the scar had given way it did not look as though it was a very recent condition. I think that the scar had been gradually giving way and it just needed a few labour pains to complete the process.

This shows that when a patient has had one classical Cæsarean operation, one must be prepared to meet this contingency of rupture of the uterus, especially if there has been either infection or temperature following the previous operation.

Couvelaire states that healing takes place by the edges being united by fibrin and then fibroblasts finish the process. Lauvray practically states the same thing.

Losee states that in a clean wound after incision there appear leucocytes, red blood cells, fibrin, and later young connective tissue cells. At times, it is almost impossible to tell where the scar has been.

^{*}Read at the Annual Meeting of the Alberta Medical Association, Calgary, September 17, 1925.

McIntyre demonstrated very definitely mitotic figures in smooth muscle tissue in a uterus which was perforated in the process of dilating the cervix. Hysterectomy was performed seven days later and, on histological study, mitotic figures were found in smooth muscle.

Schwarz and Paddock, after studying three human cases, and, after having performed sixteen operations in pregnant guinea pigs, did not find any evidence of smooth muscle regeneration. They did not find any mitotic figures in the muscle fibres. They think that the deposition of a considerable band of fibrin between the cut muscle edges, forms the basis from which healing takes place. Fibroblastic proliferation then begins. They explain the almost total disappearance of the scar in some cases as the fact that the scar is quite small in the first place, and, secondly, because of its ramifications along the line of incision between the adjacent muscle bundles. As the scar contracts it simulates more and more the normal pattern of the uterine wall. This shrinking of the scar may add to its strength. Sutures that are placed too tightly may cause some necrosis and leave a gaping inner defect in the wound. Filling of this defect by granulation tissue would take some time and thus the more rapidly proliferating endometrial tissue has an opportunity to enter and line the defect.

If there is definite regeneration of muscle tissue there should be less danger of rupture of the uterus, but apparently this question has not been definitely decided yet.

In sears of old Cæsarean section wounds followed by hysterectomy, one often finds a thinning out on the inner surface and this space filled up with endometrium.

The low cervical operation or laparotrachelotomy as DeLee has named it, has some definite advantages over the classical operation.

The cervix stands infection very much better than the fundus, and the lower uterine segment is at rest; therefore, healing takes place much better. In the upper uterine segment, contraction is taking place frequently and this may be one of the causes for the loosening of sutures even after they have been properly tied. The muscle may be separated in this manner and filled up with blood which later clots. This would give a chance for infection to spread into the peritoneal cavity because bacteria invade

the puerperal uterus, usually about the fifth day.

DeLee states that there are fourteen cases on record in which the uterus actually burst itself during the puerperium regardless of suture material used.

According to Munro Kerr, the healing of the cervix is better than that of the fundus, because active involution and fatty degeneration of the uterine wall defeat the healing power of the tissues.

One does not see the intestine at all in this operation and there is less danger of the spill spreading through the abdomen. The spill is always in the lower abdomen which stands infection better than the upper abdomen-

There is little danger of leakage of the lochia, because there is a layer of fascia after the cervix has been sutured and then the bladder is placed over this. On the other hand, if there is leakage of the lochia in the classical operation and, if pathogenic bacteria be present, the seepage takes place in the free peritoneal cavity and high up in the abdomen.

Most operators believe that the real danger of infection comes from the seepage of lochia and the passage of bacteria along the suture line after delivery.

The danger of adhesions is reduced to a minimum.

But the great difference that one notices is the smooth convalescence after operation. Gas pains are not frequent and distension is not often present. Also, it seems logical to assume that, if there is better healing in the cervix, the danger of rupture at subsequent pregnancies should be less. There are only three or four cases of rupture following the low operation that have been reported up to the present time.

I have had occasion to use this operation twice in the last few months and I am very much pleased with the results. It does take a little longer than the classical operation, and it is perhaps a little more difficult, but the technique is very easily learned.

Mrs. C., eight months pregnant, had been seen at the obstetrical clinic of the University of Alberta. There was evidence of a mild toxemia present. While walking down the street a severe rush of blood occurred saturating all the clothes of the patient. When I saw her she showed evidence of losing a great deal of blood; placenta

prævia centralis was diagnosed. It was decided to do a Cæsarean section. We did the low cervical operation without any difficulty and a live baby was obtained. The patient had a wonderfully smooth recovery.

The other case, Mrs. S., had small pelvic measurements, but it looked as though she might deliver herself in the ordinary way. However, after the test of labour had been tried, there was no engagement of the head in the pelvis. Under anæsthesia the head could not be pushed down into the pelvis, so it was decided to do a low cervical operation. The lower uterine segment was very thin, but we had no particular difficulty with the operation. This patient also had a very smooth convalescence.

By this operation the limit of operability can be extended. Even if repeated examinations have been made one might still go ahead and have expectations of a good result. But it is not to be recommended for the frankly infected cases. DeLee reports 266 cases done at the Chicago Lying-in Hospital with one death only and many of these were unfavourable cases. Stoeckel collected 194 cases of which 50 per cent were either frankly infected or suspicious, with

only three deaths. R. de Porento reported 112 cases without mortality.

The mortality of the classical operation increases with every hour the woman has had pains and especially if the membranes are ruptured, according to Routh. One can allow the test of labour and still do this type of operation. As a matter of fact, the operation is supposed to be more easily performed if the patient has been in labour for some time.

In cases where speed is absolutely necessary the classical operation will have to be done because the low cervical operation takes fifteen to twenty minutes longer to perform.

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Classification of Chronic Nephritis.-It has been the experience of Henry A. Christian, Boston, that, even with the application of both the old and new methods available for diagnosis, it is not possible to diagnose accurately, during life, the anatomic changes that will be found in the kidneys after death. Furthermore, it seems to him that complicated classificaions create a false idea of our knowledge of nephritis, particularly for those who do not obtain necropsies in their fatal cases and therefore cannot check the lesions found in the kidney with the opinion formed before the patient's death as to his proper place in the classification. Christian groups all his eases under three heads, with five subdivisions: (1) acute nephritis; (2) subacute nephritis, (a) subacute nephritis with edema and (b) hemorrhagic nephritis; (3)

chronic nephritis, (a) chronic nephritis with edema, (b) chronic nephritis without edema and (c) vascular hypertension progressing into nephritis. It is emphasized that the careful repeated application of such simple methods as history taking, physical examination, including the use of simple bedside apparatus, as the stethoscope, ophthalmoscope, blood pressure machine and blood counter, along with very simple methods of urine examination and simple tests of renal function, give the needed information for the understanding and management of patients with chronic nephritis. Methods out of reach of the well trained general practitioner add not a great deal of useful information and certainly should not supplant any of these simpler, long used methods.—Jour. A. M. A., Nov. 28, 1925.

ACUTE RHEUMATIC FEVER AND CHOREA IN CHILDREN

An Analysis of 100 Cases Treated in the Wards of the Children's Memorial Hospital, Montreal

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AND

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IN reviewing the admissions into the Children's Memorial Hospital in Montreal over a period of years, we were so forcibly impressed with the incidence of acute rheumatic fever and chorea and the very important, rôle that they play in the diseases of children, that we have analyzed 100 cases of these diseases treated in the wards of that hospital. All of the cases were admitted into the service of Dr. H. B. Cushing, physician-in-chief to the hospital.

The incidence of these two diseases is not peculiar to any location. Acute rheumatic fever is, indeed, widely distributed. It occurs in practically all the countries of the world, but is most frequently seen in the temperate and sub-tropical zones. In the United States and Europe, patients with acute rheumatic fever make up from three to seven per cent of the total number of patients admitted to the large general hospitals. In the report of the school medical inspectors of New York City, 1.40 per cent to 1.90 per cent of all the children examined suffered from heart disease; the majority of the cases were due to acute rheumatic fever.

In the United States in 1916, the mortality due to acute rheumatic fever and its sequelæ was 4.5 per cent, per 100,000 of the population. of these 43.8 per cent were over forty years of age, while the mortality was only 2.5 per cent per 100,000 under forty years of age. The specific causes of death were given as follows: pericarditis, 1 per cent; acute endocarditis, 9.3 per cent. The combined mortality from acute rheumatic fever, pericarditis and endocarditis was 6.7 per cent per 100,000 of the population. When we consider that irrespective of age, 40 per cent of all persons suffering from acute rheumatic fever, develop lesions of the heart, and that the sequellæ of these lesions more or less completely incapacitate the sufferers, the great economic importance of these diseases is easily appreciated. Chorea, like acute rheumatic fever, is an important disease of childhood and is of special interest when we study its relation to acute rheumatic fever. F. John Poynton classifies chorea into three groups:—(1) Sydenham's chorea, chorea mitis or juvenile chorea; (2) chronic progressive chorea, (a) Huntingdon's chorea, (b) senile chorea; (3) electric or Dubini's chorea.

The first group, Sydenham's chorea, is the commonest type, and in our hospital we have been especially interested in it. This type of chorea is characterized by sudden irregular movements, by mental and emotional disturbances, and by muscular weakness of varying degrees.

One of the very important and most interesting points is its relation to acute rheumatic fever. According to Poynton, acute rheumatic fever is the exciting cause of chorea. The figures of the British Medical Collective Investigation Committee show that 26 per cent of all of the cases of chorea, gave a history of acute rheumatic fever, and Burton states that 26 per cent of the cases of chorea develop acute rheumatic fever within six years of an attack of chorea.

In the analysis of 111 cases of chorea, Randall found that 63 per cent of them had a "rheumatic heart." In our series there was an association of chorea with acute rheumatic fever in 27 per cent of the cases.

This tabulated study of acute rheumatic fever and chorea was made in order to determine, as far as possible, the clinical picture of the two diseases as seen in our climate, and the results obtained from the different forms of treatment employed. We have tabulated, analyzed and studied 100 cases. In the analysis the following points were especially considered: age, sex, time

of year, birthplace, nationality, past history, family history, day of disease on admission, present illness, previous attacks, relapses, arthritis, temperature and pulse, tonsillitis, perspiration, muscular pains, subcutaneous fibroid nodules, skin manifestations, endocarditis, pericarditis, myocarditis, heart murmurs, erythema nodosum, purpura hæmorrhagica, anæmia, urinalysis, duration and treatment. Where there was any point of special interest, it was put in a separate column in our table.

Race and Nationality.—Before discussing the results with special reference to these two points, we should mention that the number of children of French descent treated in our hospital, is very small in comparison to the French speaking population of Montreal. This is due, no doubt, to the presence of several excellent French hospitals in Montreal. In our hospital the children of Hebrew descent made up about 25 per cent of all the patients admitted to the wards. This percentage is high in relation to the Hebrew population of the city.

Our analysis shows the following percentage figures of cases of chorea and rheumatic fever alone or combined:

Place of birth.—Province of Quebec, 68 per cent; British Isles, 17 per cent; Russia, 4 per cent; United States, 2 per cent; Italy, 1 per cent.

Nationality.—English descent, 41 per cent; Hebrew, 21 per cent; Scotch, 14 per cent; French, 12 per cent; Irish, 8 per cent; Italian, 4 per cent; Spanish, 4 per cent.

Age and sex .- Before discussing these points, mention must be made of the fact that the majority of children treated in the wards of the Children's Memorial Hospital, vary in age from a few days to ten years, and that the number of children over ten years of age is comparatively small. The youngest child in our series was nineteen months old; the oldest fifteen years. Seventy-three per cent of the cases occurred between the sixth and twelfth year, 20 per cent between the twelfth and sixteenth year. It will thus be seen that, up to the sixth year, acute rheumatic fever and chorea are comparatively rare, and that between the sixth and the twelfth year the cases occur most frequently. There is a gradual decrease after the twelfth year.

Females are more susceptible to the two diseases than are males. This is especially true of chorea, as is shown in the following table:

Chorea		Acute Rheumatic Fever	
Male	Female	Male	Female
14	45	25	16

Sixty-one per cent of the cases were females and 39 per cent males. These figures correspond to the sex and age incidence as reported by others.

Previous attacks .- In both acute rheumatic fever and chorea, patients often have more than one attack. In our cases of chorea, there was a history of a previous attack in 44 per cent of the cases; and in 11 per cent of these, there was a history of two or more previous attacks. In the cases of acute rheumatic fever, 49 per cent had a history of a previous attack. Of these 12 per cent in their first attack complained of only the so-called growing pains. The importance of growing pains as a clinical expression of acute rheumatic fever, is, we believe, not so much appreciated as it should be. In analyzing a comparatively large series of cases, this clinical symptom has been impressed upon us so forcibly that careful inquiry as regards its occurrence is made in all of the cases of chorea and acute rheumatic fever that are admitted to our hospital.

Of all the clinical manifestations of acute rheumatic fever and chorea, those which are referable to the heart are the most important, both in their relation to mortality during the acute stages of the disease, and in the sequelæ that so commonly result from them. In 64 per cent of the cases of acute rheumatic fever, there was cardiac involvement of some kind. In acute rheumatic fever the heart lesions were found to be as follows: mitral endocarditis 70 per cent, mitral and aortic endocarditis combined 12 per cent. Clinically recognizable myocarditis occurred in all of the cases of endocarditis, and in 10 per cent of the cases in which a definite clinical diagnosis of endocarditis could not be made.

In chorea, cardiac involvement was found to be as follows: mitral endocarditis, 59 per cent; mitral and aortic endocarditis, 4 per cent. Myocarditis occurred in all of the cases of endocarditis and in 2 per cent of the cases without any demonstrable lesions of the valves.

Our statistics emphasize the high percentage of cardiac lesions in these two closely allied diseases, and show that of the two diseases cardiac involvement is more frequently found in acute rheumatic fever than in chorea.

The faucial tonsil has two important relations to the two diseases under consideration: first, as a possible portal of entry of the causative agent; second, as a focus from which re-infection may take place. In chorea we found that there was an involvement of the tonsils, either preceding or during the acute attack in 79 per cent; and in acute rheumatic fever, they were affected in 82 per cent of the cases. The tonsils, when involved in a case of chorea, were reddened and enlarged in 56 per cent; small, cryptic and jagged in 14 per cent. In acute rheumatic fever they were reddened and enlarged in 76 per cent, and small, cryptic and jagged in 6 per cent of the cases. In our series there was only 3 per cent of the cases of chorea without an associated tonsillitis, acute rheumatic fever, or demonstrable cardiac involvement. Similarly, in the cases of acute rheumatic fever, there was only one case without an associated chorea, a tonsillitis or a demonstrable cardiac lesion. The above data emphasize the close relationship between acute rheumatic fever and chorea, and that diseased tonsils, either in an acute or chronic stage are of frequent occurrence.

Time of year.-Newsham states in his report that the largest number of cases appear in the spring months. This, he claims, is due to the fact that at this time of the year the rainfall is the least of the whole year, and the resulting low surface water level is favourable to the specific virus that is responsible for acute rheumatic fever and chorea. Our series showed the following: during December, January and February (winter months), 27 per cent of all the cases of chorea and acute rheumatic fever occurred; during March, April and May (spring months), 40 per cent; during June, July and August (summer months), 17 per cent, and during September, October and November (autumn months), 10 per cent. That is, during the winter and spring months, nearly 70 per cent of all the cases of chorea and acute rheumatic fever occurred, and the total for the spring months is greater than that for the summer and autumn months combined.

Family history.—Homer F. Smith, of Boston, believes that hereditary influences are important factors in acute rheumatic fever. Früdlander, in Leipzig, and Edelfsen, in Kiel, believe that

malnutrition, habitation and sanitary conditions, if unhealthy, depress and tend to predispose to and bring on an attack of acute rheumatic fever. In our series we found that in only 17 per cent of the cases was there a history of some member of the family suffering from acute rheumatic fever, and then not always the parents, so that we did not find that hereditary influences were an important factor in our cases.

In chorea, Poynton is also strongly in favour of the hereditary influences. He states that quite frequently a mother suffering from mitral stenosis, will bring a child to the hospital suffering from chorea, but the findings in our series were similar to those in acute rheumatic fever.

Past history.—The past history of the patient is very important, especially if the disease involves some particular organ or organs. In our series of cases of acute rheumatic fever and chorea, careful enquiry was made regarding previous or present disease in tonsils, teeth, sinuses and other possible foci of infection. We have already referred to the fact of the frequent involvement of the tonsils, but have been unable to establish any relation between a focal infection in the sinuses, teeth, ears, etc., and either acute rheumatic fever or chorea.

There appears to be some definite relation between acute rheumatic fever, chorea and scarlet fever. This is most striking in chorea. In chorea, Poynton states that searlet fever stands out as the most important antecedent, and he believes that the inflamed tonsils found in this disease, permit the entrance of the specific organism causing scarlet fever, and also the etiological factor in chorea. Recent work has established a special strain of streptococcus as the cause of scarlet fever, and has renewed our interest in the probability that chorea and acute rheumatic fever may, likewise, be due to a closely allied organism.

The previous history of our cases showed the following:—72 per cent of the patients had had measles; 6 per cent had had diphtheria; 3 per cent had had influenza; 8 per cent had had whooping cough, and only 10 per cent had had scarlet fever. In none of the cases in our series, was the attack of chorea immediately preceded by scarlet fever. When we analyzed the above table, it appeared that the incidence of the diseases noted might apply to any group of children in the hospital at any one time, though

we recognize a possible relation between chorea and scarlet fever.

Symptomatology.—In the cases of acute rheumatic fever in our series, the onset was as a rule sudden; that is, there would be a period varying from a few hours to half a day, during which time the child would be indisposed. This would be followed by a rise in temperature; with the rise in temperature there would be involvement of one of the joints, generally commencing in the ankle or knee. The joint on examination would be painful not only when movement was attempted, but also while at rest. In only 15 per cent of cases were the joints reddened and swollen. The following is the percentage in which the joints were involved:

All large joints one after another	56 per cent
Ankle and knee	17 per cent
Ankle alone	17 per cent
Knee alone	5 per cent
Wrist alone	5 per cent

Homer F. Smith believes that the first joint involved is the one that has been subjected to local stress or strain, or to other depressing factors, such as cold or wet; as an example, the ankles of a man who has been shovelling snow. He also states that, due to the fact that the lower extremities are more prone to slight local injuries they are generally the seat of the first involvement. He quotes Presham's report which states that the ankles, knees and shoulders are the joints most frequently affected.

In chorea, the onset of the choreiform movements in nearly all of the cases was first noted by a parent, usually the mother, as either a slight twitching of the mouth, or some clumsiness while eating, such as dropping a fork, spoon or knife; or as a change in disposition; previously bright cheery children become emotional and irritable, and on the slightest provocation burst into tears. In the majority of cases the children were pale and anæmic, and in 60 per cent were ill-nourished, and showed only fair development. They were nearly all emotional, and the general twitching was associated with muscular weakness of a varying degree, none, however, showing the so-called "paralytic chorea." Speech for varying lengths of time was affected in nearly all instances, being slurred and frequently in the severe cases, unintelligible.

In adults suffering from acute rheumatic fever, the temperature varies between 102° and 104°, and there is generally a difference of

1° to 3° between the morning and the afternoon temperatures. If the infection is severe and there is a rapid involvement of the joints, the temperature will quite frequently remain constant at or about 104°. In adults, hyperpyrexia occurs very infrequently, but this condition is given as the cause of the largest percentage of deaths in the acute stage. Such cases may show a temperature of 106° or higher, accompanied by varied cerebral manifestations such as restlessness, delirium and convulsions. They may at times develop paresis or paralysis of certain muscle groups. In contrast to this, our tables shows the average temperature in children to be 99° to 100°, and in only one case did it go as high as 104°, and then only for a few hours. In only 10 per cent did the temperature reach 103°, and then only for one to two days. In 18 per cent the temperature went as high as 102°. When the temperature went above 100°, it was usually for only one to two days, and occurred only in those cases where the disease was limited to either one or two joints; not when there was multiple joint involvement.

Homer Smith states that one of the most characteristic of all the manifestations of acute rheumatic fever is the presence of subcutaneous fibroid nodules, and that they occur more frequently in children than they do in adults. The British medical authorities report that subcutaneous fibroid nodules occur in the larger majority of their cases, while the French and German report them less frequently. In the United States, they are said to be rather rare. In our series, we found them to be present in 17 per cent of the cases of acute rheumatic fever. In every instance in which they occurred, there was an accompanying endocarditis, generally of a severe nature. The recognition of subcutaneous fibroid nodules is not always easy, and unless they are carefully searched for, they will be missed. This is, perhaps, in part, the reason why the statistics in regard to their presence, vary so widely.

Nothing special was noted in the *urinalysis* of any of the cases of chorea or acute rheumatic fever in our series.

The complications in chorea are nervous and cardiac. All the cases showed a tendency to the hysterical and emotional states, and we have already noted the cardiac involvement.

In acute rheumatic fever, Homer Smith states that the heart is more frequently affected in children than it is in adults, and that with each decade of life the liability to heart involvement lessens, that the greater the severity of the disease, the greater the liability to involvement of the heart. The latter statement, while true for adults, is not always true for children. One sees quite frequently cases of acute rheumatic fever with slight signs of heart lesions, yet it is also true that the general signs and symptoms of acute rheumatic fever may be slight, and the heart lesion severe. This point we wish to emphasize. Homer Smith also states that from 80 to 90 per cent of children, under ten years of age, who have had acute rheumatic fever, show cardiac involvement. We found in our cases that a cardiac lesion was present in 82 per cent.

Erythema nodosum occurred in 17 per cent of all cases studied and purpura hæmorrhagica in 4 per cent. In the cases in which these cutaneous affections occurred, the disease was of a severe nature.

The treatment of acute rheumatic fever in this hospital has varied from time to time. Originally it consisted in placing the patient in bed under heavy blankets, and giving as a laxative, compound liquorice powder. Acetyl salicylie acid or sodium salicylate in five grain doses was given three times a day in water. Recently we have used the following treatment: rest in bed between heavy woollen blankets, with one grain of sodium salicylate per day for every pound body weight, associated with sufficient sodium bicarbonate to reduce the acidity, and tincture of nux vomica in doses varying from ten minims to thirty minims a day as a stimulant. In cases showing a weakened or decompensated heart, tincture of digitalis is given beginning with five drops three times a day and gradually increasing until a satisfactory physiological result is obtained. The usual safeguards in the administration of the drug are observed. The accompanying tonsillitis is treated with ice packs to throat; nothing internally. After recovery, removal of the tonsils is considered.

In chorea, previously to 1916, it had been the practice to give all patients suffering from this disease *Liquor Arsenicalis*, commencing with two minims three times a day and gradually in-

creasing the dose until ten minims were given three times a day. If any signs of arsenical poisoning appeared, the drug was discontinued. This treatment was discontinued when a patient, a female, eleven years of age, was admitted to the hospital with chorea, and suffering from an ankle and wrist drop. This patient had been given large doses of arsenical solution in the treatment of a previous attack of chorea. We have also noted that the benefits arising from the administration of arsenic are very slight in comparison to the danger of such a severe complication as cited in the above case. The treatment used at present is rest in bed, isolation with as complete quiet as is practicable, and sodium salicylate in five grain doses three times a day; examination and treatment of tonsils and other foci of infection, and in certain cases of cardiac involvement the use of tincture of digitalis as in acute rheumatic fever. Complete rest in bed, is we feel most important in both acute rheumatic fever and chorea, and rest under as quiet conditions as possible. There is no arbitrary time during which this should be continued, but it is safe to say that even in the mild cases it should be for at least one month. In the more severe cases a longer period is required. The essential point to bear in mind is that with rest a more perfect cure can be hoped for, and a few weeks more or less means so much to the future of the child that it becomes a part of the physician's responsibility to see that the child is given the best possible chance.

It has been the custom in our hospital to have the tonsils removed provided they were diseased, as soon as the acute attack had subsided. This has been practised for the reason that we believe that this organ is probably the portal of entrance of the causative agencies and that a recurrence of the infection might be forestalled. The results obtained have been gratifying. In some instances, however, in the cases we have studied a tonsillectomy has not prevented a recurrence of the disease; in one instance the removal of the tonsils, was almost immediately followed by a relapse.

The Prognosis in acute rheumatic fever, as to life, is favourable during an acute attack. Only one of our cases died. The post mortem examination showed the cause of death to be due to tuberculosis of the lungs. The heart was found to be normal. According to Homer Smith the

prognosis for adults is not so favourable, the mortality varying from two per cent to four per cent. The prognosis for return to full health in children following an attack of acute rheumatic fever is poor when there is an involvement of the heart.

None of our cases of chorea died. The prognosis as to life during an acute attack is therefore good. If the attacks are repeated and are of long duration, the children tend to become nervous, and their intelligence suffers sometimes during an attack, and even occasionally after it, rendering it impossible for them to continue their studies. As a result their education suffers at a time when they are most receptive. If the heart is involved the prognosis for a return to full health is very poor. Thus the child

may become handicapped from both a mental and physical standpoint.

On account of the high percentage of children whose physical and mental powers are so seriously affected by acute rheumatic fever and chorea, it behooves the medical profession to see that the most careful nursing and medical attention be given during the acute illness. A slight attack of either of these diseases often causes severe damage to the heart; even the mild cases should be treated with as much care as the severe ones. This should be done not only for the welfare of the patient, but also on account of the great economic need of our country, which is young and growing, and requires all the strong and healthy men and women that it can obtain, if it desires to maintain its position as a force within our Empire, and in the world at large.

CÆCAL STASIS*

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IT was in 1903 that Lane commenced his writings on the evil effects of intestinal stasis, and since that date, probably as a result of the interest he created in this subject, many articles have appeared in medical literature under such titles as pericolitis, typhlitis, cæcitis, perityphlitis, false appendicitis and membranous pericolitis, having as their object an explanation of certain features of constipation. Multiplicity of names is always confusing, and perhaps it is for this reason that the importance of cæcal stasis is sometimes overlooked. The object of this paper is to try and show that execal stasis is a well defined clinical entity, and deserves recognition as such, and may be associated with certain pathological conditions which are amenable to surgical treatment.

The normal cœcum.—In the development of the gastro-intestinal tract, the colon goes through a process of migration, rotation, descent and fixation. About the fifth month of fœtal life the gut rotates upon itself, and the cœcum which at first occupies a point in the mid line, migrates to a point immediately below the liver. the sixth month it descends into the right iliae fossa. The normal execum should lie on the psoas muscle, and be in contact with the anterior abdominal wall above the outer half of the inguinal ligament. The ascending colon should be in contact with the anterior abdominal wall as high as the level of the crest of the ilium, at which point it dips down and is found in relation to the quadratus lumborum muscle and the right kidney. In the normal individual, there is neither a mesocæcum or mesocolon. The normal ileum is freely moveable in its entire length, which permits of free passage of bowel contents into the cæcum. The cæcum is the widest and most distensible portion of the large gut, its muscular wall being the thinnest and weakest. It is the chief seat of bacterial proliferation and catarrhal disturbances. Digestion is practically completed by the time food reaches the ileo-cæcal valve, and the contents of the large bowel may be considered as waste material. The bowel contents passing the ileo-cæcal valve

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are fluid, and in the execum absorption of liquids takes place leaving a semi-solid mass as residue. The ileo-excal valve after all is a valve, and allows fluid to pass in one way only, and shuts off any return flow from the execum. According to Hirsch, above the execum in the first portion of the ascending colon, exists a sphineteric tract which retards the egress of excal contents into the ascending colon until absorption is complete. When the execum has accumulated sufficient material to stimulate this sphineter, peristaltic action of the bowel commences and the contents of the execum passes onward to the ascending colon. The ileo-execal valve and the execocolic sphineter normally act coincidently.

Anatomical abnormalities about the cacum.-During embryological life several errors of development take place. Any of the processes of migration, rotation, descent or fixation may fall short of, or exceed the normal, or be found in various combinations of any two of the four processes. Non-descent of the cæcum is found in about 4 per cent of adult males (Grey's Anatomy, p. 1309). A mesentery to the cæcum or ascending colon will be found in 26 per cent of cases (Treves' Surgical Applied Anatomy, chap. xviii, p. 341). The terminal ileum may be fixed by an ileo-peritoneal band in 10 per cent of cases (Grey and Anderson, Lancet, 1913, i, 1300). The cæcum may be rotated in such a manner as to cause obstruction to the ileo-cæcal valve, and sometimes the anterior surface of both cæcum and ascending colon may be covered by a veil-like pericolic membrane referred to by various writers, and described by Jackson in 1908, and with which his name is now associated.

A cæcum which empties itself normally, whether it be associated with anatomical peculiarities or not, cannot be considered pathological. Many individuals carry one or more of the above mentioned anomalies about for two or three decades without showing symptoms. But these congenital abnormalities can play a very important part in the production of cæcal stasis. All congenital defects constitute a weakness, and under extra strain may be the means of tipping the scale in favour of disease. The production of stasis is a slow process. A cæcum which is fixed either by a binding down of the terminal ileum or a pericolic membrane,

or one that is abnormally mobile, may empty itself with difficulty and imperfectly. Faulty diet may modify the bacterial flora of its contents. Putrefactive processes lead to distension and catarrhal changes in the mucosa. Pathogenic micro-organisms penetrate the intestinal wall, leading to a pericolitis, and a thickening of the already present congenital membrane. Abnormal irritation of the execocolic sphineter causes spastic contraction of this portion of the The final outcome of these factors is atonic distension of the execum with paresis of the execocolic sphineteric tract, and a disarrangement of the synchronous action which normally exists between this and the ileo-cæcal. a result of stasis the appendix may become inflamed and cause symptoms of appendicitis, and if simple appendicectomy be performed, relief from symptoms will not follow operation. Disease of the appendix has slipped into the clinical picture very insidiously, and may be only a minor part of the pathological condition present.

Clinical picture.—These cases may present a wide variety of symptoms, and may simulate chronic appendicitis, peptic ulcer, cancer and other abdominal diseases.

In the cases resembling chronic appendicitis, there is always a long history of repeated attacks, but although the disease has persisted for so long a time, the attacks have not increased in severity as is the case in chronic disease of the appendix, and there is always the absence in the history of any definite attack of acute appendicitis. The attacks, as a rule, are more frequent, and the intervals between attacks, correspondingly shorter, are never clear of symptoms. Discomfort and flatulence persist, and the patient eats sparingly. When pain is present, it commences in the right iliac fossa and may be associated with severe headache and be without fever.

Cases resembling peptic ulcer have pain referable to the epigastrium. Vomiting may be present. Hæmatemesis may be a prominent and confusing sign; according to Walton it occurs in 50 per cent of cases which is identical with the percentage of ulcer cases causing hæmatemesis. Gastric analysis may show either hyperacidity or a hypoacidity. There are, however, certain points of difference to be noted. The attacks are usually close together with very

short intervals between, and again it is to be stressed that at no time is the patient free from distress and flatulence. He eats sparingly because of a lack of desire for food, while in ulcer he is afraid to eat because food causes pain. He is usually poorly nourished, while in ulcer in the early stages he is well nourished. Vomiting does not give relief, and may occur several times a day.



Fig. 1.—A fold of peritoneum extends across the anterior surface of cœcum and ascending colon, holding the gut in distension. The membrane is continuous with the omentum which binds the transverse colon to the ascending colon at the hepatic angle.

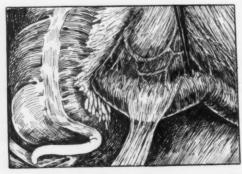


Fig. 2.—An ileoperitoneal fold binds down the terminal ileum (Lane's Kink).

Cases resembling carcinoma are seen in people of the cancer age, especially in males. The loss of appetite, presence of anæmia, hypoacidity and poor nutrition seen in cancer, may all be seen in this condition. Certain cases of the cancer age, who through some extra strain become prematurely old, lose their muscle tone and develop

visceroptosis, may develop symptoms so rapidly, and the period between apparent health and severe illness may be so short, that differentiation from cancer is exceedingly difficult. Many of these cases go about diagnosed gastric neurosis or neurasthenia, a term which sometimes signifies mental fatigue on the part of the physician rather than nervous exhaustion on the part of the patient.

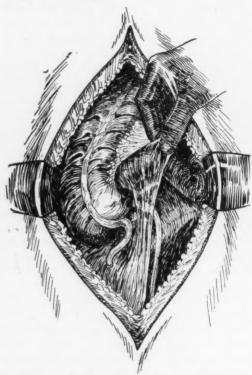


Fig. 3.—Reed's ileo-generic band is situated more closely to the ileocæcal valve than Lane's Kink, and extends into the pelvis where it is connected with the right ovary.

The symptoms vary according to the age of the patient, and the number of years stasis has been present. Early, the patient will have found relief from lying down after each meal, but later a feeling of distension and discomfort persists, and there are no remissions from this when once established. The persistence of dyspepsia without any period of absolute freedom from symptoms, is one of the most characteristic symptoms of the disease. Pain on the right side may be present and may vary in intensity. Certain physical signs are also noticeable. A gurgling tumour in the right iliac fossa or right side of the abdomen, can be felt. A train of

nervous symptoms is often present, more especially in women, e.g. mental inertia, constant depression, and loss of power of concentration. I have seen one case where convulsions were present before operation, and have not occurred since operation (a period of five years now having elapsed free from seizures.

Too much importance can not be attached to correct posture in both children and adults, whether standing, sitting or walking, in its relation to good health in general. A short period of rest in bed, a meat free diet, daily enemata followed by a strict course of dieting, fitting

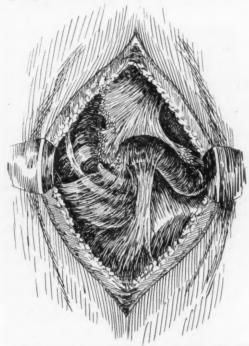


Fig. 4.—An ileocæcal fold of peritoneum obstructs the terminal ileum and involves the caput cæci. (Bloodless fold of Treves).

The most valuable information is obtained by the x-ray; ptosis, pericolic membranes, dilated cæcum and abnormal fixation all being demonstrable by the x-ray after an opaque meal. Findings are likely to be more accurate here than in any other abdominal lesion.

Treatment.—No stereotyped proceeding can be outlined for treating these cases. If the underlying cause of this is congenital, and only a potential menace, much can be done to guard against development of symptoms by treating malnutrition and correcting poor posture. Loss of muscular tone and visceroptosis are both factors in causing the condition of stasis, both of which can be guarded against. As the condition is four times as common in females as males "the debutante slouch" adopted as the fashionable posture in our growing girls to-day, is not likely to lessen the incidence in the near future.

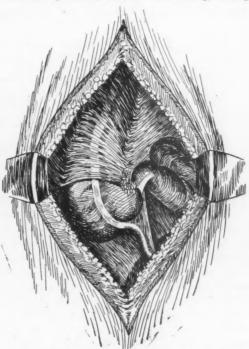


Fig. 5.—An extra fold of parietal peritoneum radiating downward over the ventral aspect of the ascending colon, leaves the appendix and caput cæci free.

with an abdominal belt, proper exercise and attention to constipation, may restore many to health. Walton maintains that many of the socalled gastric ulcers in young girls are really not ulcers at all, but should be designated as of this class. When all else fails, operation becomes necessary. Here again, no set rule can be followed. In the simple cases, removal of the appendix with release of any constricting bands or membranes will suffice. The more severe cases require plication of the cæcum and ascending colon, as well as release of the constricting bands and membranes. Mechanical correction is the object of any operation. Removal of the colon has been advocated by some, but this surely should be reserved for extreme cases, where the cœcum is very large, or to cases where plication of the excum and colon, with fixation, has been tried and failed. The worst case I have ever seen has his colon plicated and fixed, and has enjoyed over twelve months of good health free from digestive symptoms, and is thirty pounds heavier than before operation. It is interesting to note that Sir Arbuthnot Lane in a recent article, states that releasing the bowel from its acquired attachment and instituting

proper after-treatment, has given as satisfactory results as the more radical operation of removal of the colon.

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ANATOMICAL NOTE ON A POSSIBLE SOURCE OF ERROR IN X-RAY FINDINGS OF THE NORMAL VERTEBRAL COLUMN

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THE material which we obtained for the following anatomical observations, was from a patient in the service of Dr. A. H. Gordon, at the Montreal General Hospital, to whom we are indebted for permission to publish this article.

A male Finlander, age twenty-five, presented several puzzling symptoms, the most prominent of which were two painful nodules on the back. These were about the size of small marbles, situated one half inch lateral to the spinous processes of the eleventh and twelfth thoracic vertebræ.

Roentgen pictures were taken of the vertebral column to assist in the diagnosis of these nodules. The lateral view of the column showed horizontal fissures running through the centres of the bodies of the tenth, eleventh and twelfth thoracic vertebræ (Fig. 1). Subsequent x-ray pictures corroborated this peculiarity.

The clinical diagnosis was pleurisy with effusion; pulmonary tuberculosis; tuberculosis of some portion of the lower intestine; some obscure connection of the painful nodules on the back with the vertebral column or spinal cord. It may be added that repeated examinations of the central nervous system failed to reveal any pathology referable to this system.

The post mortem findings were pleurisy with effusion; advanced pulmonary tuberculosis; tuberculosis of the ileo-cæcal region, with extensive tuberculous involvement of the mesenteric lymph glands. The two painful nodules men-

tioned above were underneath the deep fascia of the muscles of the back, and were in no way connected with either the vertebral column or the spinal cord. The whole spinal column from the first thoracic to the last lumbar vertebra was removed en masse and carefully cleaned. Grossly it appeared as a normal column, with normal curves and with no evidence of any pathology.

The excised vertebral column was again x-rayed, in order to compare the findings with those taken during life. The skiagraph showed fissures identical to those seen in the first x-ray picture, with the involvement of some additional thoracic and lumbar vertebræ. (Compare Figs. 1 and 2).

A sagittal section was made through the whole specimen, just a little lateral to the mid line.

Fig 3 is a photograph of the sectioned vertebral column. Through the centres of the bodies of the vertebræ, from the ninth thoracic to the fifth lumbar, (T ix - L. v), one can see more or less complete horizontal channels dividing each vertebral body into two parts, an upper and a lower segment. These channels have smooth walls and contain veins which run posteriorly to join a longitudinal plexus of veins, situated between the posterior surfaces of the bodies of the vertebræ and the dura-periosteal layer, which lines the vertebral canal. These horizontal venous channels correspond to the horizontal fissures of the x-ray photographs. (Compare the fissures in the bodies of the vertebræ. Figs. 1, 2, 3-T. X; T. xi; T. xii: L. i). In order to interpret these fissures, one must refer to the embryological development of the human body. The vertebral column is developed from a series of segmentally placed blocks of mesenchymal tissue, (sclerotomes). These sclerotomes are ventral offshoots from the primitive metamerically arranged dorsal myotomes.

T.X.
T.XII

Fig. 1.—X-ray photograph of vertebral column while patient was still alive. At the levels T. x, T. xi, T. xii, are seen the very faint horizontal fissures running through the bodies of these vertebrae.

As development proceeds the sclerotomes surround the neural tube (spinal cord) and the notocord. The notocord becomes absorbed very early in fætal life. The only trace of it is the "nucleus pulposus" of the adult intervertebral dises.

In a 10 mm. embryo (two months) each primitive vertebra receives an artery and a vein from the main blood vessels. These branches run horizontally through the body of each vertebra creating a horizontal fissure therein. The arteries, arteria intersegmentalis, disappear early. The veins persist and increase in size (Fig. 4).

In passing it may be stated that the general

plan of the morphology of the human body is segmental. Each segment, myotome and its derived selerotome, receives its own nerve, artery and vein. The adult intercostal nerves, arteries and veins are merely the elongated and dragged out structures which originally supplied segmentally, the primitive myotomes.

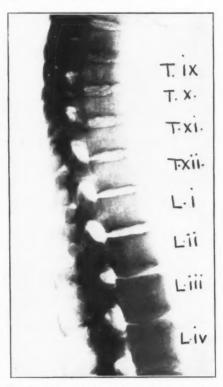


Fig. 2.—X-ray photograph of the removed vertebral column. In this picture the horizontal elefts are seen in the bodies of the vertebræ, from the ninth thoracic to the fifth lumbar inclusive. T. ix; L. v.

In the adult, the primitive segmental veins to the vertebræ persist as the *venæ basivertebrales*, which empty into the internal vertebral venous plexus, running longitudinally in the vertebral canal. This longitudinal plexus is situated on the posterior surface of the bodies of the vertebræ and the intervertebral discs, between the two layers of the *dura mater spinalis*, (Fig. 5).

From Fig. 5 it will be seen that normally the body of each vertebra is traversed by a central vein (the basivertebral). As with veins in other parts of the body, these veins vary in size and distribution. As a matter of fact, the basivertebral vein spreads out in a fan shaped manner, the handle of the fan corresponding to the

entrance of the vessel into the internal verte- we get the elefts in the bodies of the vertebræ bral venous plexus. It is when these veins are larger than normal, or when the stem of the fan runs as a single vessel antero-posteriorly, that

TIX T.XI. T.XII. . 11 L.III . . IV. L.V.

Fig. 3.—Photograph of sagitally sectioned vertebral column. T. ix. L. v. The dark transverse lines and notches in the bodies of the vertebræ are the fissures for the basivertebral veins. (Compare with

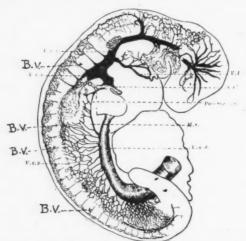


Fig. 4.—The arrangement of the venous system of the vertebral column in a young embryo, B.V.-basivertebral veins. (Keibel and Mall).

as shown in the x-ray photographs.

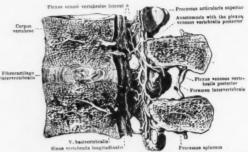


Fig. 5.-Arrangement of the normal venous blood supply of the vertebræ. (Spalteholz).

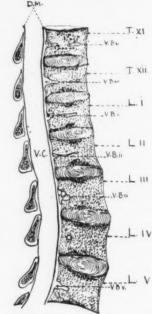


Fig. 6.—Sketch of the sectioned vertebral column T. xi-T. xii-Thoracic vertebræ. L. i-L. v. Lumbar V.B. xi-V.B. xii Basivertebral veins of the eleventh and twelfth thoracic vertebræ. V.B. 1—V.B. v. Basivertebral veins of the lumbar vertebræ. D.M. Dura mater spinalis. V. C. Vertebral canal.

Fig. 6 is a sketch of the sectioned vertebral column to show the various possible x-ray findings. For instance in the eleventh and twelfth thoracie (T. xi; T. xii) one would expect to find almost a complete fissure extending anteroposteriorly (V.B. xi; V.B. xii.) In the second lumbar (L. ii) one would get a thin cleft posteriorly (V.B. ii), whereas in the third lumbar (Liii) one would get a large notch on the posterior surface of the vertebra, (V.B. iii), (Compare with Fig. ii).

It is almost superfluous to mention that these horizontal fissures in roentgenograms must not be confused with numerical variations of the vertebræ which occasionally occur. In the latter case there is always an intervertebral disc intervening between the two vertebræ and the fissure is much wider and always complete. Occasionally it happens that there are two centres of ossification for the body of each vertebra instead of the usual single one. In such a case the centres are situated laterally to the sagital line. Any arrest of development or lack

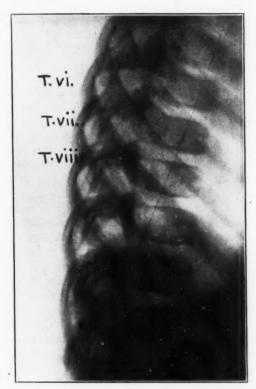


Fig. 7.—X-ray photograph of vertebral column of child aged three. At the levels T. vi, T. vii, T. viii, are seen faint horizontal fissures running through the bodies of these vertebræ.

of coalescence of the two centres would give a vertical slit and not a horizontal one.

Another possible anomaly in an x-ray picture of the vertebral column might occur when the primitive notocord is not completely absorbed. In such a case, one would also get a vertical slit running through the bodies of the vertebræ.

Conclusions

1.—The body of each vertebra normally has a vein or veins of appreciable size traversing its centre horizontally.

Occasionally this vein persists as a large vessel even in the adult.

3.—This vein may be of such size as to cause a fairly large channel through the centre of the body of the vertebra.

4.—This normal channel will cause a definite fissure, complete or incomplete, in the body of one or many of the vertebræ; showing in x-ray pictures as horizontal transparent elefts through the centres of the bodies of the vertebræ.

5.—These transparent clefts must not be confused with fracture or any other pathological condition.

Note.—About one month after we had written up this case, a child of three years was admitted to the surgical wards of the Montreal General Hospital. There was a painful swelling on its back, with the history of a fall. The question of fracture of the vertebral column was considered, and an x-ray picture (Fig. 7) was taken. Dr. W. L. Ritchie, roentgenologist, recalling the former case, at once recognized basivertebral notches in the bodies of the sixth, seventh and eight thoracic, and pronounced the vertebral column normal. The child made an uninterrupted recovery.

I wish to thank Dr. Ritchie for his kind cooperation in the x-ray part of this communication.

Pyocyaneus Meningitis after Lumbar Puncture. Isidore I. Levy, Baltimore, and Armand E. Cohen, Louisville, Ky. assert that the ease presented by them is the first reported ease of Bacillus pyocyaneus meningitis following lumbar puncture, not preceded by or associated with other pyogenic infection and in which the

patient apparently made a complete recovery. Excessive headaches were relieved by spinal drainage, and the authors think that this procedure, together with the intraspinal injection of inactivated autogenous blood serum, has a favorable influence on the course of the disease. Journal A. M. A., Dec 19, 1925

SPINAL METASTASIS FROM BREAST CARCINOMA

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THE literature upon the subject of spinal breast carcinoma has been instituted, with the metastasis from breast carcinoma is very limited. Pfahler¹ discussed before the American Roentgen-ray Society in 1916 the Roentgen diagnosis of metastatic malignant disease of bone, with special reference to the spinal column. In this article he refers to the comprehensive study of tumours of the spinal column made by Fraenknel. Fraenknel's study was based upon 150 cases that had died of carcinoma of some part of the body. Metastatic carcinoma was found in the spine in thirty cases, or 20 per cent. Ten of the cases examined had a primary breast earcinoma, with a spinal metastasis in six eases, or 60 per cent. Carcinoma of the breast in women, and carcinoma of the prostate in men, were the most frequent primary tumours to show metastasis in the spine.

Moore² in 1919 read before the American Roentgen-Ray Society, a paper on metastatic malignancy in bones. In a study of sixty-five cases of bone metastasis, thirty-six had the primary lesion in the breast, and eleven in the prostate. Discussing the sites of metastasis he found twenty-two in the spine and eleven in the pelvis. Recently Carman read a paper before the Radiological Society of North America, on the subject of bone metastasis from carcinoma of the breast. We look forward to the publication of this paper for the valuable statistics it will give.3

The writer's attention was drawn to this subject lately in a forcible manner, through the occurrence in his practice, almost simultaneously, of three eases of metastatic carcinoma of the spine secondary to carcinoma of the breast.

This coincident occurrence in three eases of a condition so infrequently mentioned in the literature suggested the possibility that spinal metastasis from breast carcinoma is more frequent and more important than is usually supposed. With this in mind recent journals have been scanned with the results above enumerated. Further, a study of the writer's own cases on idea of discovering what has been the actual incidence of spinal metastasis.

Arising out of these investigations three leading questions have suggested themselves. First: Is there any characteristic symptom which should direct one's attention to the spine when dealing with a case of breast carcinoma? Second: Is the complication sufficiently frequent to warrant a routine preliminary investigation of the spine by means of the x-ray? Third: Is a routine post-operative x-ray treatment of the spinal column advisable in all breast carcinoma

Fifty-four breast carcinoma cases have been reviewed in this series. All had radical operation and the diagnosis was confirmed by the pathologist. Many had pre-operative radiation, and all were followed by x-ray therapy over the tributary gland areas. Twenty-one cases showed recurrence or metastasis. The distribution was as follows, (some cases showing secondary lesions in more than one area): spine, seven; lungs, seven; supra- and infra-clavicular glands, five; skin at operation site, four; peritoneum, three; hip, two; liver, two; opposite breast, one; axillary glands, one. The time at which recurrence or metastasis occurred varied from three months to five years, the average being between one and two years.

Forty per cent of our breast carcinomas developed metastases. In one-third of that 40 per cent, the metastases were in the spine. This corroborates the findings of the authorities quoted, and indicates the prime importance of breast carcinoma as a producer of metastasis; it also points to the spine as a very frequent site for that metastasis.

A short summary of four case histories, ineluding the three coincident cases to which I have referred, will illustrate the characteristic findings in this type of disease.

Case 1 .- Age forty-three. June 25, 1920. Radical removal of right breast, muscles, and axillary and clavicular glands. Pathological diagnosis, scirrhus carcinoma. Recovery was uneventful. The usual routine x-ray treatment was given, continuing one year. In May, 1922, patient complained of aching pain in both hip regions. This pain was transmitted down to the knees. Careful examination at this time revealed no demonstrable cause for the pain. This pain continued more or less intermittently for the next couple of years. In May, 1924, patient came to the clinic complaining of aching pain in the left abdomen near the crest of the ilium.

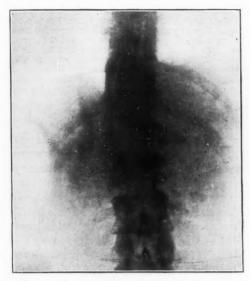


Fig. 1.—Case 1.—Advanced osteoplastic changes in first lumbar vertebra.

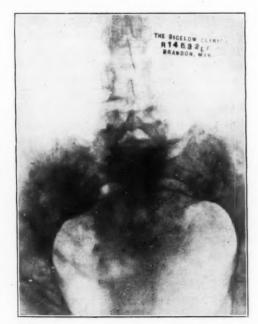


Fig. 2.—Case 1.—Osteoplastic changes characteristic of secondary carcinoma in lumbo-sacral region.

This pain had been felt intermittently for the last four months. It came in spells, and was worse after each menstrual period. It was relieved by sitting or standing, and made worse by lying. Patient could not lie on the left side. There was no backache. On examination it was found that the pain was worse when rising from a lying to a sitting posture. On bending the spine the dorso-lumbar region remained rigid. Radiograph of this area, (in the writer's absence) was reported negative. It showed, however, a very definite early rarefaction of the right half of the body of the first lumbar vertebra.

By September, 1924, the pain had become localized in a backache, and was very troublesome. Radiograph at this time (Fig. 1) showed marked increase of the changes in the first lumbar vertebra; osteoclastic changes characteristic of carcinoma in this location. There was almost complete absorption of lime salts and yet little change in the contour of the vertebra. Radiograph (Fig. 2) taken at the same time showed changes in the sacrum and ilium; osteoplastic changes characteristic of secondary carcinoma in that location. The bones presented a motheaten appearance, with small areas of alternate absorption and deposit of lime salts. This explained the pain in both hip regions complained of some two years previously, when the symptoms pointed to a condition which the x-ray could not portray until so long afterward.

The patient died July, 1925.

Case 2.—Age fifty-seven. July, 1924. Left breast removed, and the pectoralis, major and minor, with it. The radical operation was not proceeded with because of a large inoperable mass of cancerous glands in the axilla, surrounding and involving the axillary vessels and nerves. Under subsequent x-ray treatment, covering a period of nine months, this mass in the axilla melted away. The wound healed and the patient's condition appeared favourable.

At the time of examination prior to operation the patient stated the lump had been present in the breast for two years. At that time she also complained of a lame back which had been troubling her for the last six months. The lameness extended down to and settled in the right hip. The soreness was never felt when lying on the back. This was in marked contrast to the first patient who had the lesion in the lumbar spine high up.

Radiographs of the sacro-iliac region were interpreted as showing no signs of cancer. There was persistently from the start a condition interpreted as an obliterative arthrosis of the left sacro-iliac joint, of the osteo-arthritic type. In view of the subsequent clinical history and its analogy to the other cases we are now inclined to regard it as an atypical metastasis. Patient is now practically bedridden, suffering severe lower back pain of an intermittent type, and bilateral in distribution.

Case 3.—Age forty-nine. January, 1923. A radical operation was performed for removal of the right breast and axillary glands. The pathological report indicated scirrhus carcinoma. The recovery from the operation and the healing were normal. The usual subsequent x-ray therapy was carried out, covering a period of seven months. About Christmas, 1923, patient began to be troubled with pains in the lower part of the back and down the legs as far as the heels, worse on the right side. Pain was also felt in the right arm and up the back of the neck.

In March, 1924, the pains were somewhat improved, and the patient presented herself at the clinic for examination. Radiographs of the whole spine were negative. Physical examination showed normal mobility of the right hip, with freedom from pain on movement. Inclumbo-sacral region was very painful on manipulation.

In October, 1924, the back pain had become ex-

tremely severe. The radiograph (Fig. 3) taken at this time showed irregular mottling of the whole of the lumbo-sacral area, an osteoplastic change characteristic of secondary carcinoma in this location. X-ray treatment over the spine was instituted and is being continued. Patient has become greatly emaciated. There is severe pain of an intermittent character.

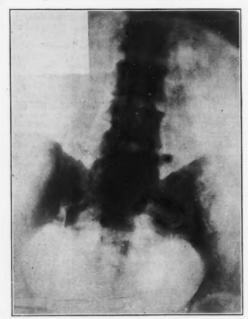


Fig. 3.—Case 3.—Osteoplastic changes characteristic of secondary carcinoma in lumbo-sacral region.



Fig. 4.—Case 4.—Early secondary carcinoma, left hip, ileum, and sacro-iliac.

Case 4.—Age thirty-three. February, 1923. A radical operation was performed for removal of right breast and glands in the axilla. Pathological diagnosis was scirrhus carcinoma. A lump had been noticed in the breast for about a year. For one month there had been pain which the patient called sciatica. It was felt in the lower back and down both legs, but mostly in the right hip. The radiograph taken at the time of the operation was negative. During the patient's stay in the hospital subsequent to operation, the pain in the lower back increased and marked disability of the left hip ensued.

In March, 1923, prior to her return home, a radiograph (Fig. 4) was taken. This showed rarefied areas in the upper end of the femur, the ilium, and the sacro-iliac area. By August, 1923, the patient had become completely blind. The lower extremities were paralyzed. There was marked pain in the sacro-iliac region. The radiograph showed extensive carcinomatous involvement of the left hip, left ilium, and sacrum. She died shortly after.

The consideration of the histories of these four cases—so strikingly alike in their symptomatology, furnishes a very definite answer to the question asked at the outset: Is there any characteristic symptom which should direct the surgeon's attention to the spine when dealing with a case of breast carcinoma? There is. That symptom is pain. This pain is bilateral in distribution (although often felt more in one side). When the lesion is in the sacral region the pain is sciatic in nature and distribution, but bilateral. When the lesion is higher, in the lumbar or dorsal segments, the pain follows the nerve distribution from the sensory root ganglia involved. Later, as the lesion in the spine progresses, the pain becomes localized as a backache at the affected site. Long preceding any lesion that can be demonstrated by x-ray this characteristic type of pain is almost diagnostic of beginning metastasis in cases of breast carcinoma.

The lesion itself, when sufficiently advanced to be demonstrable by x-ray, has quite a characteristic appearance. Two types of pathological change are noted. The osteoclastic process, in which there is an absorption of lime salts, and a consequent rarefaction, with, however, little or no loss of contour, is characteristic of lesions in the lumbar and dorsal regions. This was well illustrated in the progressive changes noted in the radiographs of the first lumbar vertebra of Case 1. The absence of collapse of the vertebra differentiates it readily from tuberculosis. The osteoclastic process, in which there is alternate absorption and deposit of lime salts, in contiguous areas, is characteristic of lesions in the lumbo-sacral and sacro-iliac region. This is well illustrated in the mottled appearance of the radiographs of Cases 1 and 3.

The answer to the second question:—Is the complication sufficiently frequent to warrant a thorough preliminary investigation by x-ray of the whole spine in all cases of breast carcinoma? is definitely "Yes." Any complication which forms anywhere from one-third to two-thirds of all sequelæ of breast carcinoma is surely worthy of careful investigation.

It is more difficult to answer the third question:—Is a routine post-operative radiation of the spine, as a prophylactic measure, advisable? Our own experience is that secondary carcinoma

of the spine is usually uninfluenced by radiation, although striking results are occasionally reported by other workers. What the prophylactic value may be we do not know. Yet the occasional reports which appear in literature of cases of bone carcinoma metastasis benefited by radiotherapy perhaps should influence our decision. The patient should be given the benefit of any treatment which offers any prospect of benefit even though it be but a forlorn hope.

REFERENCES

(1) PFAHLER, Amer. Jour. of Roentgenology, Mar., 1917, p. 114. (2) Moore, Amer. Jour. of Roentgenology. Dec., 1919, p. 589. (3) MEYERDING, CARMAN AND GARVIN, Radiology, Dec., 1925, p. 486.

PHOTOGRAPHY AS APPLIED TO DERMATOLOGY

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IT is noteworthy that all real students have some method of recording notes from day to day in connection with their work, and with the dermatologist the hobby of photography usually crops up, and I think every dermatologist at some time in his career has dabbled in the art.

Now and again one of them gives us the results of his experiments in getting good pictures of skin lesions and, by the way, they are hard to get and of course all these ideas are good; but with all workers the facilities are not similar and the prescribed equipment cannot always be procured or used. There are three essentials to get satisfactory results, first, the type and size of camera; second, the quality and type of lens, and third, the source of illumination.

The type of camera should be one with good extension bellows, i.e., about thirteen inches; and a four by five plate is handy because the worker can take his picture on a four by five plate or a 3½ by 4½ by using a kit in the plate holder and either make a contact print or contact lantern slide or put his negative up in a view box and make a reduction if required. There is no doubt that the contact lantern slide cannot be improved upon unless the picture has not been taken in proper proportion in the first place.

Of course cabinet sized photographs are preferable for illustrations, but the majority of men like to keep their records as lantern slides. A 3½ by 4½ camera is more economical if lantern slides only are wanted, but it is not so easy to handle and the bellows extension is not so long. The Premo No. 9, four by five camera with a good tripod fills the need very well.

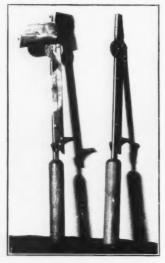
The quality and type of lens is very important; speed is not a requisite, and a convertible lens in which the doublet, front and back singlets are of different focal lengths is ideal for this work because with the choice of these three focal lengths we can always get sufficient distance between the object and the camera to overcome distortion. Dr. Campbell, of Montreal, does this by introducing a telephoto lens. A close up picture to show discrete lesions will be very distorted if taken with a lens of $5\frac{1}{2}$ inch focal length where an eight or eleven inch lens would make it look natural.

If a long gallery is available a lens of about twelve inch focal length can be used for all work with a camera of long bellows extension. Of course this outfit will not be very readily transported.

The focal length of a lens is the distance from

its centre to the ground glass with an object focused at infinity or over 100 feet.

The lens fulfilling these requirements and also of the finest optical quality is the Protar. The Dagor is a very fine lens but has only two focal lengths. Various makers produce very good convertible lenses. For the camera suggested, a Protar 5 5/8 Doublet, consisting of a 8½ and an 11½ singlet make a good combination, the thirteen inch bellows extension taking care of them all and pictures can be taken with fine definition and no distortion if one is careful in posing the subject, not allowing extraneous objects to appear and having a background with contrast such as black satinet.



Flash gun as suggested made from a gas lighter.

The source of illumination is of very great importance and all methods have their disadvantages. It must be fast because fine details of lesions will be lost by the slightest movement. Are lights, high power nitrogen lights and reflectors are expensive and cumbersome and not as fast as required. A quartz light is very good and we all have them handy, but it is not fast enough. Daylight is seldom available when needed most. Flash powder is the choice because we can standardize and always get a good picture and it is also fast, the usual speed being about one thirty-fifth of a second. The faster the powder the sharper the report, but this is not very objectionable, the dust or ash is the greatest offender and a near-by open window will take care of this unless we care to arrange a special room and blower ventilator as Dr. MacKee has done at the Vanderbilt Clinic in New York. I have found that a thimbleful or less of powder is sufficient and the lens opening can be cut down to F. 16 or F.22 and this small aperture is the secret of sharp definition and deep focus so necessary in these pictures. Depth of focus is the ability of the lens to show points at different planes sharply on the plate For all-round work a sort of flash gun is required to hold the flash powder and fire it and this is an important instrument as it is very aggravating to prepare everything, open the shutter and have the flash fail to come across. If it is a cap gun then another cap must be inserted. Of the cap guns the "Imp" is the handiest. Electric ignition is good but complicated. I have found the most reliable and least dangerous gun to be made from a fifteen cent gas lighter procured at a five and ten cent store with a small brass pan soldered on and it practically never fails, and if it does not explode readjust the powder and pull the trigger again. Remember a premature shot may take off your eyebrows or burn your hands.

In concluding let me emphasize that a fast lens is not necessary, as the least distortion and finest definition can be obtained with a small diaphragm opening. To get proper illumination and the speed necessary to arrest motion and prevent blurring of finer lesions and also have definition and depth, flash powder is the only satisfactory source for the amateur. Use the longest focal length of the lens that space will allow and focus sharply on that portion of the lesion nearest you, that beyond will be taken care of by the small lens opening. A focusing lens is very handy to study the ground glass with and a piece of newsprint held against the lesion to be sure of sharp focus, but do not forget to remove this before making the exposure. It will be found very satisfactory to focus with the shutter open on time and take the picture by the use of the bulb exposure, throwing the shutter open and then firing the flash and naturally letting go the bulb at the explosion. Development and printing technique are in no way different in this sort of work from any other, but the very best plates should be used.

TRENCH MOUTH

COLONEL F. S. L. FORD, C.M.G., M.D.

THE prevalence of stomatitis in varying degrees of severity, and of pyorrhea alveolaris, among the British troops during the recent war, attracted a great deal of attention from medical and dental officers attached to all arms of the service. There appears to be a difference of opinion as to the cause of this very widespread and troublesome affection, which depleted the strength of all formations.

During the war one could not help being struck with the resemblance this so-called "trench mouth" bore to the manifestations of mercurial stomatitis. The lesions had the appearance and behaviour of those resulting from poisoning from mercury, but perhaps the most characteristic feature was the peculiarly disgusting fetor which was noticeable in the majority of cases. This fetor, when it exists, is almost pathognomonic of mercurial poisoning.

With latrine accommodation, often, of necessity, restricted as to extent and accessibility, and the uncomfortable conditions under which the latrines were visited, constipation was fairly prevalent, particularly among troops doing front-line duty. To overcome this the medical officer most frequently prescribed "Number Nines," (calomel 2 grs., compound rhubarb pill 2 grs., compound pill of colocynth 2 grs.) Two, three, and even four of these pills were a common dose, and, as they were seldom or never followed by a saline, the chance of mercurial

poisoning was great. It is fair to assume, in fact, that the prevalence of the so-called "trench mouth" in the British army was due to the wide-spread practice of giving "Number Nines" without a saline to follow.

Two years after the close of the war, an officer became ill with catarrhal jaundice. This officer was given calomel, quantity unknown, for three days in succession. Before the end of a week he developed the characteristic symptoms of mercurial stomatitis. Inasmuch as his teeth were affected, he presented himself for treatment to a dentist who had seen service overseas. The dentist, knowing nothing of the history of the case, immediately pronounced the condition to be "trench mouth," and gave him the appropriate treatment which resulted in an uneventful recovery.

Trench fever developed only in those who were exposed to infestation with infected lice, and was therefore most prevalent among troops in the front line where disinfestation facilities were limited. Trench mouth, on the other hand, for the reasons above stated, whilst more noticeable among troops doing front-line duty, affected troops in England and Canada, where the same remedy was given to overcome constipation. In searching for the cause of trench mouth, the fact that calomel was given in the way above mentioned should not be overlooked.

Diabetes Mellitus in Children.—J. C. Schippers (Nederl. Tijdschr. v. Geneesk., May 16, 1925, p. 2206) states that since his previous paper (ibid., 1915,ii, p. 788) he has seen six cases of diabetes in children between 6 and 12 years of age, but that the disease is very rare in infants. Jeans in 1917 came to the conclusion that of 100 recorded examples of diabetes mellitus in infants only a few could withstand criticism. In 1913 Knox had found only 16

genuine cases in the literature. Schippers now reports a case in a child in whom the disease started at the age of 4 months. With an appropriate diet and insulin treatment improvement occurred, although the patient did not become sugar-free, but after an attack of acute pharyngitis at the age of 13 months there was a considerable increase in glycosuria, coma set in and death followed. *Brit. Med. Journal.* Oct. 31, 1925.

A RESUME OF THE THERAPEUTIC VALUE OF X-RAYS

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THE action of x-rays as a curative agent is no longer the mystery it used to be. There is a general principle in the action of the rays which, when understood can be applied to explain why certain diseases heal under their action. This principle is, that x-rays in small quantity are a stimulant, in moderate dose an irritant, in larger dose a vesicant, and in still larger dose a superficial destructant. In very large doses x-rays burn deeply. These five doses are measured in terms of the dose Sabouraud first laid down for epilation for ringworm. Let us call this dose one Sabouraud dose or 1 S then:

 $\frac{1}{2}$ S = a stimulating dose.

1 S = an epilation dose without redness.

2 S = a dose which produces redness of the

3 S = a dose which produces slight blistering of the skin.

4 S = a dose which produces superficial destruction of skin.

5 and upwards causes x-ray burns the depth of which varies with the dose.

Skin of old people requires more than 4 S to cause destruction. A small area of skin can stand a larger dose than a large area of skin.

RINGWORM.—Treatment by x-rays is the only known certain cure. The head is divided into five areas and 1 S is given to each area. After a month the head is bald and the child is free from infection. The child remains bald for two months and then the hair begin to grow. Four months from the date of the x-ray treatment the hair has grown sufficiently for the child to return to school. The treatment should be given by one who is accustomed to give the treatment and by no one else. X-rays do not kill the parasite. They remove its food (epilation) and the parasite dies.

SYCOSIS.—One epilation dose cures sycosis. When the hair drops out the parasite dies from want of nourishment. From the patient's point of view the immediate relief of itching is a

very pleasant feature of the cure. One month after the x-ray treatment the disease is almost gone, and after two months, the skin is smooth and perfect. Three months after the treatment the beard begins to grow. Re-infection must be watched for and any area not epilated must be treated with one epilating dose of x-rays.

FAVUS.—What has been said of ringworm is true of favus.

Chronic Boils which originate in the sweat, or sebaceous glands or hair follicles are cured by temporarily destroying these structures. By 1 S, a single acute boil is benefited.

HYPERIDROSIS is cured in six months by 1 S applied once a month. This leaves the skin bone dry. It is better to stop after the fourth or fifth treatment and leave the skin with a slight amount of perspiration. Hands, feet and armpits are suitable places for the treatment. The face should not be treated, in case telangiectasis follows two years after the treatment.

Psoriasis can be made to disappear temporarily by 1 S. The cure may not be permanent.

Kelom improves under x-ray treatment. Idiopathic keloid disappears entirely. Keloid following a burn is improved but does not disappear entirely. The dose should be a stimulating one (1/3 S to ½ S) each week. Keloid following a surgical incision should be treated by x-rays. The treatment should be continued for three months and then stopped.

Warts require a large dose of x-rays. A lead mask with a hole cut in it should be placed over the wart and the wart alone should receive 4 S, the surrounding skin being most carefully protected. After a week there may be pain in the wart lasting for a week. Three weeks from the x-ray treatment the wart separates and falls out.

RODENT ULCER heals under x-ray treatment. An area the size of a quarter heals each month so that an area three times the size of a quarter may be expected to heal in three months. Unfiltered x-rays should be used. The first dose

should be 4 S, and 1 S a month thereafter till the ulcer has healed. Treatment should go on for six months after the ulcer has healed in order to prevent recurrence. Treatment by radium is also successful and recurrence is less likely to take place.

Lupus Vulgaris is improved but rarely cured by x-rays. Finsen light is the best cure and this may have have to be supplemented by zinc ionization to get rid of the last tubercles. Lupus erythematosis should not be treated with x-rays. Solid carbon dioxide cures it.

ACNE VULGARIS.—Dose 1 S once a month. The first effect is to make the condition, if anything, worse. Slight improvement follows after two months. After the fourth month there is marked improvement. Cure comes after six months or less. The reason for cure is that the sweat and sebaceous glands are temporarily paralyzed. The germs do not find suitable food and therefore die. Cure should be brought about before these glands are totally destroyed. The cure is permanent. Parts not fully treated may have to be treated for another month or two. It is difficult to get the exact dose all over the face and neck at once.

ECZEMA.—Chronic scaly eczema yields to one treatment of 1 S. Acute eczema should be treated once a week with ½ S dose.

Superfluous hairs on a woman's face should not be treated by x-rays. Electrolysis should be used.

Nævus.—Very extensive nævus should be treated with x-rays. The dose is 2 S once a month till cured. Too much treatment will produce telangiectasis. Too much should not be attempted as improvement goes on for months after the nævus begins to go away. So long as it goes on improving no more treatment should be given. Small nævi should be treated by solid carbon dioxide.

Uterine Fibroids are successfully treated by x-rays. The fibroid diminishes usually to about a third its size. The menopause is brought on and hæmorrhage ceases. Treatment should be complete in three months.

Uterine Hæmorrhage at or near the menopause is successfully treated by x-rays. The menopause is brought on rapidly by suitable x-ray treatment so that only one period follows the beginning of the treatment.

ENLARGED THYMUS in a baby, should be

treated by x-rays. If the symptoms do not disappear in twenty-four hours the diagnosis of enlarged thymus is probably incorrect. 1 S hard filtered rays should be used.

EXOPHTHALMIC GOITRE should be treated every three weeks with hard filtered rays 1 S to each side of the neck and upper part of chest. Improvement is not to be expected before a month. After two months improvement should be well marked. The basal metabolism should be watched, so as not to affect the gland too much and so bring on myxedema.

Tuberculous Glands should be treated once a week with hard filtered rays ½ S dose. The treatment should go on for three months. The end results are that sinuses dry up and heal and the glands shrink to hard, small nodules and remain as such. All symptoms disappear.

SPLENIC LEUKÆMIA is temporarily much improved by x-rays and radium, but relapses occur which necessitate more treatment till finally an intense relapse occurs which prostrates the patient and no further x-rays or radium have any effect. When the cell count is not over 60,000, x-ray treatment should be stopped. We must remember to treat the patient and not the disease. When we understand the reason why x-rays benefit splenic leukæmia we may find a better way of applying the rays. Possibly an x-ray bath of the new very penetrating rays might be the solution for the cure of this disease. I have had one patient whose white cell count was 650,000. He has had three treatments with deep therapy during the last two years and is now in excellent health.

LYMPHADENOMA responds rapidly to x-ray treatment, but the final result is disappointing as the patient may die after two or more years, although the glands have been very much reduced in size. Sarcoma should be removed by surgery whenever it is possible. Large sarcomatous masses may be much reduced in size by x-ray treatment.

Carcinoma should be treated by surgery whenever possible. When time permits between the diagnosis and the operation an epilation dose should be administered of intensely hard x-rays to the affected part and all areas where affected lymphatics may lie. After the operation a similar dose should be given as soon as the patient can stand it, and the part treated should be kept saturated with hard x-rays for six months. By

the end of six months the skin should be well tanned. Recurrence after operation (where no x-rays have been given) should be treated similarly and the amount of x-rays administered should be increased so as to produce a marked reaction. As soon as the reaction subsides treatment should be continued. By this means recurrent nodules disappear, and pain is relieved. Treatment should be continued for a year. Slowly growing carcinomata respond better to this method. Ulcerated areas heal slowly. X-rays appear to have no effect on some carcinomata. Secondary growths of carcinoma in the skin have been seen to disappear so frequently under x-ray treatment that one is justified in recommending x-ray treatment for all cases of carcinoma, both pre-operative and post-operative. It is also indicated in cases of inoperable carcinoma, in order to relieve pain and retard the progress of the disease. The present day method of treatment of carcinoma by x-rays is

to use extremely hard x-rays from an x-ray tube with 200,000 volts.

A few dangers should be remembered in x-ray treatment. To redden the skin, especially on the side of the neck, may give rise to telangiectasis two years later. If redness is produced twice it will almost certainly be followed by telangiectasis. Too much x-rays given at once over chest or abdomen is very apt to give rise to sickness and vomiting which may last two or three days. In deep cancer cases it may be necessary to produce this sickness to get results. An acute x-ray burn heals in a month or two and is not dangerous. A deep x-ray burn involving muscle is very dangerous and should never be produced. Chronic x-ray dermatitis occurs in radiologists but may also be seen after too long treatment of lupus. It does not heal and goes on to epithelioma. The eye and the brain are not especially sensitive to x-ray treatment.

Prevention of the Common Cold .- The chief subject discussed by the Medical Officers of Schools Association at its meeting on November 6th (reported this week at page 901) was the prophylaxis of common colds in schools by means of preventive inoculation with a vaccine. boarding-school provides an excellent place in which to assess the value of this form of treatment, because those who have been vaccinated can be watched for some time, and because external conditions which affect such a comparatively isolated population can usually be record-There have been instances in which vaccination against coryza has been conducted with the rigorous control demanded of a scientific experiment, but these have not been on a large enough scale nor led to sufficiently unequivocal results to convince the sceptical. Many of the experienced school medical officers who took part in last week's discussion obviously have faith in prophylactic vaccination against colds, and some could point to successful mass inoculations. When, however, the lack of precise knowledge about dose, optimum time of inoculation, repetition of doses, and duration of immunity after anticatarrh vaccines is compared with the well founded knowledge about other forms of vaccination—as, for instance, against typhoid fever -we realize that hesitancy and lack of confidence are not out of place. Nor should it be forgotten that no single causa causans of the group of infections loosely labelled as coryza has as yet been identified. With so many uncertain factors it is not surprising that opinions differ, and the meeting did wisely, we think, in recommending the council of the association to set up a sub-committee to investigate the best methods of preventing infectious catarrhs in schools. The sub-committee will perform an important public service if it collects and reviews the literature of previous attempts in this direction, and after sifting the evidence draws up a workable plan for putting vaccination against colds to the test on a large scale. The uncertainty which exists about this more technical method of prevention naturally resulted in greater prominence being given to vaccination than to other and better established means of prophylaxis. But such important measures as nasal and aural hygiene, avoidance of overcrowding, and attention to proper ventilation and clothing, must not be relegated to a subordinate position. These are well tried common-sense precautions, and it would be a pity if hopes based on the possible value of a few thousand million microbes in a bottle should induce any school medical officer to neglect rational measures which have proved their worth.

Case Reports

A CASE OF PSEUDO-BULBAR PARALYSIS

P. M. MACDONNELL, M.D.

Kingston, Ont.

John R., age fifty-two, farmer, had always enjoyed good health until March, 1924, when he found himself losing the use of both thumbs. This loss of power gradually spread to the hands and arms until in September, 1924, he was unable to feed or dress himself. Later, both legs were involved and in January, 1925, he had great difficulty in walking and suffered numerous falls. He had, for some time, had cramps in his legs, and during the last six months there were some girdle pains. In February, some swelling was noticed in his feet when standing and he became confined to his bed.

He was admitted to Kingston General Hospital on May 27, 1925. At this time his efforts at speech were unintelligible although he seemed to understand what was said to him. The above history was given by his wife.

Examination.—Patient had to be kept in sitting position since lying prone caused great pain. For the same reason he insisted on his wrists being crossed in front of him and his legs fully extended. His facial expression was dull and staring and his limbs were completely paralysed with positive Babinski ankle clonus and exaggeration of all reflexes in arms and legs.

The heart, lungs and abdomen showed nothing of importance. Nervous system.—There was no involvement of nerves of special sense or of the sensory tract. There was immobility of the face, the eyes were staring and the lids did not shut. The tongue could not be protruded, Patient had marked difficulty in swallowing any solids. Liquids if given carefully he could manage. As noted above his speech was unintelligible.

Sensation was apparently intact, and the control of bladder and bowels appeared to be normal.

Course in Hospital.—June 8, 1925. Patient was very irritable and seemed to be in great pain. At night he was very noisy and irrational. Since admission he developed incontinence of both bowels and bladder. June 16.—Patient

unable to swallow anything, was gradually developing paralysis of breathing. Lungs showed hypostasis behind as evidenced by distant breath sounds and moist râles. Reflexes in arms were much weaker. Patient died at 7.30 p.m., June 16 when the paralysis of respiration became final.

Autopsy.—No pathological findings of importance other than those associated with the central nervous system. No macroscopical lesion in brain or cord. Microscopical examination showed an advanced degree of sclerosis of long pyramidal tracts throughout their course from the internal capsule down the anterior and crossed pyramidal tracts to the sacral segments of the cord. No definite pathology in large motor cells (Betz) of the cortex was demonstrated. The anterior horn cells and motor nuclei were normal. The lesions were, thus, those of primary sclerosis of the long pyramidal tracts.

LUNG ABSCESS FOLLOWING THE REMOVAL OF TEETH UNDER GENERAL ANÆSTHETIC

C. A. Peters, D.S.O., M.D.

Physician to Montreal General Hospital

Mrs. H., aged twenty-five, housewife, admitted to the Montreal General Hospital, October 23, 1925, complaining of pain in right side of chest and cough with foul expectoration.

Personal History.—Never ill before. On October 9 she had all her upper teeth and lower molars removed under gas anæsthesia.

Present Illness.—On October 16, one week after the removal of the teeth she complained of a "stitch in the side" with shortness of breath. Two days later she commenced to cough. The cough was accompanied by a bad taste in the mouth, and later with the expectoration of greenish, foul smelling sputum. The cough did not occur often in the day but it became more frequent and troublesome when she turned on her left side. The day before admission the expectoration contained dark coloured blood.

There was no history of night sweats; and no history of cough or expectoration prior to the present illness. There was no loss of weight.

Present Condition .- Well developed and well

nourished young woman. Orthopnæic position, she cannot lie down on account of pain on the right side. A foul odour to the breath is noticeable some distance from the bed. There is some dyspnæa and slight lagging of the right side. There is an area of diminished resonance from the fourth to the eighth dorsal spine, where the vocal fremitus and the vocal resonance are increased. The breath sounds are distant, bronchial, and somewhat amphoric in type. In the upper part of the area moist râles are heard. On the left side the sounds are normal.

Other systems are negative.

Sputum muco-purulent, and with foul odour; it contains no blood and is negative for acid fast bacilli.

Blood Count.—Red blood cells, 3,660,000; white blood cells, 14,350; hæmoglobin, 69%. The temperature was septic in type, the highest being 102.4.

X-ray Report.—There is evidence of either a pneumonic process or of a lung abscess in the right lower lobe: most likely the latter. There is no evidence of any foreign body of a type that can be demonstrated by this method of examination.

Bronchoscopic Report.—The trachea is injected. The right main bronchus shows intense injection of the mucous membrane in the region of the middle lobe with some cedema. There is considerable thickening about the entrance to the middle and lower lobes. The lower lobe could not be entered with a Number 7 bronchoscope. A suction tube was inserted into the bronchus and no foreign body could be detected. Pus could be seen exuding from the lower lobe. The bronchus was well irrigated and 10 c.c. of guminol injected. Culture of the pus from the bronchus was negative.

The general condition of the patient is now much improved. The temperature has been normal for over two weeks. The sputum is no longer foul, although the quantity is still considerable, The largest quantity in twenty-four hours was fourteen ounces, it now averages four ounces. The cough is less frequent, and she can empty the cavity easily by lying on her left side with her head low.

Treatment.—Bronchoscopic with suction of the pus, and postural, lying on the left side several times a day with the head below the shoulders. At the same time the movement of the right side of chest was limited by placing on it two bags of shot each weighing ten pounds. Artificial pneumothorax was tried but was not successful owing to adhesions between the pleuræ.

Surgical drainage of the cavity will be recommended if she does not continue to improve under the above treatment.

Note:—Since writing the above the patient has continued to improve most encouragingly.

FOOD ANAPHYLAXIS

J. C. LINDSAY, M.D.

London, Ont.

Mrs. P., aged thirty-five, after eating one-quarter of a raw peach showed the following symptoms: The fruit in her mouth immediately produced a sensation of formication with nausea. A little later there was a tight choking sensation in the throat and chest with crowing inspiration and "itching sensation" situated deeply beneath the sternum: the heart rate was markedly increased. Soon followed a distressing coryza and conjunctivitis with swelling of the eyelids and lips. After two or three hours, the symptoms gradually subsided with a feeling of weakness and lassitude which lasted for two or three days.

There is a history of similar attacks having been produced by eating other raw fruits as apples, raspberries and bananas, one attack following the eating of walnuts. Bayer's aspirin invariably brings on this train of symptoms. Cooked fruits can be eaten by the patient without any ill effect. During a pregnancy three years ago she had a "craving" for raw fruits which she satisfied to the limit. There is no history of asthma, hay fever or skin rashes. (Harvey Bulletin).

Pellagra Associated with Annular Carcinoma of the Terminal Portion of the Ileum.—Franklin R. Nuzum, Santa Barbara, Calif., reports two cases in which well defined skin lesions were present, and a diagnosis of pellagra had been made by dermatologists. At death in each in-

stance an annular carcinoma of the terminal portion of the ileum was found. Nuzum says that these instances of disturbance in nutrition as the result of mechanical obstruction of the small bowel give added weight to the dietetic origin of this disease. *Journal A.M.A.*, Dec. 12, 1925.

Editorial

CENTENARY OF FIRST CANADIAN MEDICAL JOURNAL

IT is worthy of note that the first medical journal to be published in Canada made its appearance just one hundred years ago. It was known as the Journal de Médecine de Québec or Quebec Medical Journal and was published for the first time in the month of January, 1826. Doctor Xavier Tessier was the editor. It was a quarterly and was issued in the months of January, April, July and October. It continued in existence for a period of two years.

On referring to the first edition we find that the French and English language were used alternately, each, however, being quite distinct as regards subject matter. It is said that as long as the journal was published there was a friendly rivalry between the two sections. The contents were divided roughly into three parts and in the preamble to the first issue the division of contents is described as follows:

"The first part will be devoted to the analysis of the works of the day from which we will make extractions that appear to us to be of interest to the physician.

"The second part will be a collection of all the new discoveries, either of the treatment of disease or of some other branch of medicine, as well as extraordinary cases that merit consideration.

"The third part in fine, and that to which we call particular attention, will include that which is of greatest interest to the physician and to the Canadian public."

In elaboration of this subject the editor tells us: "It is with the object of meriting as much as is in us, the encouragement of all classes of society, and that of our confrères in particular, that we will give a résumé of the diseases which prevailed during the past season, after which we will permit ourselves some

reflections, as occasion warrants, on what is most pertinent concerning the preservation of the health of each individual; since it is the general concensus of opinion that we should remove those obstacles which retard the progress of the physician. The rest of the work will be devoted to the writings of those who take some interest in the advancement of science in Canada and may wish to bring these to the attention of the public."

There was an editorial committee which was composed of the outstanding physicians of the day. Among the French-speaking members were Joseph Painchaud, Joseph Parent, Joseph Morin, François Blanchet, C. N. Perrault and P. M. Bardy. Among the English-speaking members were Doctors Caldwell, Robertson and Stephenson of Montreal, and Dr. W. A. Hall of Quebec. In addition, there were Doctors Meilleur of L'Assomption and L. S. Talbot of Three Rivers. Doctors Caldwell, Robertson and Stephenson were co-editors with Dr. Tessier.

The journal was printed in octavo by Lemaitre Frére at No. 3 St. Famille Street in Upper Town, and, finally, at No. 4 Notre Dame Street, Market Place, Lower Town. The subscription fee was \$4.00 a year.

Too much cannot be said in praise of those members of the profession who in those early days had the vision and courage to embark on so important a venture as the publication of a medical journal; especially is this the case when we recall that as yet there was no medical school in Quebec and the Montreal Medical Institution was only in swaddling clothes. In glancing over the names of those who were associated with the publication we cannot but be impressed, for we find there not only the names of the

the founders as well of the first medical "The Medical Society of Queyear; the founders of "The Montreal Canada.

founders of the first medical journal, but Medical Institution" and the founders of "The Incorporated Medical School of the City of Quebec." These are names that bec," which was organized in the same will live forever in the medical records of J. J. HEAGERTY, M.D.

WEIGHING VERSUS COUNTING

" F making many books there is no end, and much study is a weariness of the flesh." Thus wrote Solomon, consistent advocate of the getting of wisdom, nearly three thousand years ago-more than twenty centuries before paper came into use in the West, and printing from types was introduced. Fancy the vigour of his comment could he snuggle into his library chair in one of these our days, and behold the daily dozen of publishers' catalogues awaiting his perusal!

Men have come like Solomon and men have gone like Solomon, but the streams of books from many a haunt still flow on, chattering, to join the brimming river. The holding up of deprecatory hands has proved just as successful as Mrs. Partington's noted mop in resisting the tide, and no more. And we have, in uneasy resignation, called the whole thing "literature." Were it not for the equivalent of "here and there a lusty trout, and here and there a grayling" we might have done something about it. But, like Solomon of old, we have merely grouched, though not always with such dignity.

If there were more than chatter in most of the books which have been foisted upon us, our complaint would be less bitter. This is said of medical books no less reservedly than of books in general. Surely we have reason for discontent in the vast amount of speculation which is set before us, with profit, perhaps, to exploiting producers—authors, publishers, and an innumerable company of artisans and labourers in earth, sea and even the air (what altruists we appear to be in this analysis!), but certainly to our discomfiture, and to the serious detriment of important natural resources.

Perhaps Copernicus may have been influenced by other reasons than simple honesty, when he withheld publication of his theories of the solar system, until he had mulled over them for thirty-three years, but he was then able to present them convincingly, and his name liveth for evermore. It is said that Newton pondered his notions relative to gravitation for twenty years before submitting them for acceptance; and that he would have deliberated even longer on "fluxions" had he not learned that another (Leibnitz, who grumbled about the number of new books in his time and declared that "our scientific life has become a mere slop-shop"), was thinking as he was-and he craved credit for priority. Darwin, too, was prevailed upon to issue his great work sooner than he wished because of the imminence of Wallace's publication, but he had already spent twenty-two years in amassing facts and checking observations. Neither Harvey nor Pasteur nor Jenner nor Lister can be accused of precipitancy in giving utterance to their epoch making discoveries. And Morgagni, who contended that observations should be weighed not counted, waited until he was in his seventyninth year before placing De Sedibus Causis Morborum in the hands of publishers.

If all scribacious aspirants for a place in the sun had exercised such restraint we should indeed have lost much that is worthy in literature, but we should also have been spared much of that which "dulleth wits, ranckleth flesh and palleth ofte fresh bloods." In medicine, of all things, we should be protected from the results of hasty and immature reflection. Judgment is quite as difficult with us as it was with Hippocrates, and errors in judgment are of singularly serious moment when health and life are at stake. So even at the risk of being dubbed conservative, we plead with our medical authors to weigh their observations rather than count them. If this plea is heeded fewer books will be made. Otherwise we may be constrained to initiate a movement for a process analagous to canonization of Solomon, so that there may be constituted a proper authority for book burdened mortals to supplicate for sympathy and relief.

W. H. HATTIE

COLLOIDAL LEAD AND THE CONTROL OF CANCER

WITHIN the past few weeks the lead treatment of malignant disease has burst from the comparative obscurity of the medical press into the full glare of newspaper publicity. The effect of this publicity has been more or less electric upon many of those suffering from cancer, and consequently the physician is compelled to take some notice of the method.

The question of treating new growths by means of metallic ions dates back to the Middle Ages when Guy de Chauliac, at Montpelier, used arsenical pastes to destroy superficial cancerous growths. This method has persisted to the present day in the hands of charlatans.

More recently, however, there has been an increasing interest in the effects of metallic ions upon tissue growth. In 1922, Borrel and others reported the effects of barium, silver and copper and lead ions upon rat tumours, stating that a large proportion of the tumours disappeared after the exhibition of lead salts. In 1923, Reding and Dustin, in Brussels, reported favourably upon the clinical effects of intramuscular injections of magnesium sulphate on metastases of cancer of the breast. Further reports by Slosse and Reding upon the influence of various ions upon malignant growths are to say the least surprising.

Of more immediate interest to ourselves, however, is the attention drawn to the work of the Liverpool Cancer Research Committee as a result of a recent address in this country by Professor Blair Bell. The efforts of this group have been directed to a laboratory and clinical study of the effects of lead upon cell growth in general, and upon the growth of neoplasia in particular.

Starting with the well known prevalence of sterility and abortion amongst women employed in the lead industries, Blair Bell and his group have studied the effects of lead salts upon various embryonic tissues, particularly the chorionic epithelium. He claims that the more embryonic the type of tissue and the more active its growth the greater are the toxic effects of lead ions upon that tissue. It is claimed that these rapidly growing tissues have a higher phosphatide and lecithin content than more mature structures and consequently have a greater affinity for lead ions. In man the malignant neoplasia are said to offer a close parallel to these embryonic tissues as far as rapid growth and high phosphatide content are concerned, and consequently they would have a corresponding attraction for lead, and that the metal would here exert its chief toxic action.

The poisonous effects of lead upon the body as a whole are too well known to require comment and the first efforts of the committee have been directed to the development of some form of lead suitable for injection, with a relatively low toxicity, and from which lead ions would be liberated slowly after injection into the body. It is claimed that colloidal suspensions of lead possess these advantages, but so far the suspensions have been too unstable to allow of their use outside the clinic. Even with this preparation, toxic effects have to be guarded against by repeated studies of the blood, kidney function, and so on.

The clinical results as far as they have been published (some 200 cases) suggest that some retardation of the disease is possible in from twenty to twenty-five per cent of cases, but the number of actual cures cannot be estimated for some years. It is stated that the lead tends to become fixed in the tumour, and exerts a more or less definite toxic action upon the actively growing cells, resulting in some considerable decrease in size of the mass and in some instances a complete disappearance. Adami in a recent letter to the British Medical Journal presents an explanation of the rather irritating secrecy as regards the preparation of the material for injection and the actual details of treatment. He sounds a necessary note of warning regarding the bad effects of publicity. The public should be warned not to expect too much. If the tumour is far advanced, and has infiltrated or replaced the normal tissues of some important organ, for example the stomach, the very act of causing necrosis of the cancer cells may be followed by a fatal giving way

and rupture of the area involved, by perforation, hæmorrhage and the like. These possible contraindications naturally limit the applicability of the method to a comparatively small group of cases, but even within these limits a material reduction of mortality would mean much to humanity.

A general review of the material suggests that it is still too early to give more than a very limited assent to many of the claims made. The originators of the method have not hidden the dangerous character of the treatment, which is still in the experimental stage; much still remains to be done before it can be put to the crucial test of widespread clinical use, and it is upon this clinical test after all, that the final judgment of success or failure will have to be based.

D. SCLATER LEWIS

THE FUNCTIONS OF THE LIVER AND THE TESTS FOR THEIR ACTIVITY

MEDICAL literature recently has contained numerous articles on the comparative values of the various liver function tests. Some workers have reported the finding of one test apparently satisfactory; others report that other tests give more accurate results as to the true state of the activity of the liver cells.

An appreciation of newer views regarding the functions of the liver may lead to a better understanding of the various tests, and this subject is discussed by Professor Carlson of Chicago in the Journal of the American Medical Association of November 17th, 1925. He describes the various ways in which the function of the liver has been investigated and reminds us that in spite of diligent work much remains obscure and uncertain regarding its various activities. Nevertheless certain facts are fairly well established.

There is now almost conclusive experimental evidence that fibringen is produced in the liver or under the direct

influence of the liver. The recent work of Mann and his associates by methods involving total extirpation of the liver appears to indicate that this organ, after all, is the main one for protein metabolism, in that it forms urea and destroys uric acid. Incidentally they have shown that 15 or 20% of the normal quantity of liver tissue suffices to meet the ordinary bodily needs. As regards fats it would appear that the liver desaturates them; and in regard to carbohydrate metabolism, the liver is still considered as the main store house of glycogen but is dependent on a hormone received from the pancreas.

The formation of bile is deemed to be a process both of excretion and of secretion. Apparently the bile pigment can be to a large extent formed in tissues outside the liver, the latter acting mainly as an excretory organ. On the other hand the bile salts, or rather the bile acids, appear to be specially synthesized in the liver, and are thus true secretory products of

liver activity. The excreting capacity of the liver, as will be pointed out later on has been extensively exploited with a view to establishing reliable clinical tests of the liver functions.

As regards the relation of the nervous system to liver function and bile evacuation, most of the problems remain incompletely solved. However, experiments would seen to show that the extrinsic nerves connecting the liver and the bile duct systems with the central nervous system are not necessary for normal liver functioning. It has also been shown that when food or acid gastric juice enters the duodenum, duodenal motility is initiated or augmented by local and by long reflexes, and increased secretion is produced in the stomach, pancreas and liver. This results in an increased flow of bile into the intestine. Carlson, however, does not think that magnesium sulphate as given by the Meltzer-Lyon method of nonsurgical drainage of the gall bladder causes more drainage of bile from the gall bladder and duct system, than takes place when food, water or gastric juice enter the duodenum.

With this brief review of the physiology of the liver, we now pass to a resumé of the various clinical tests for the activity of the several liver functions. Papers have appeared recently on these subjects in the August, September and October numbers of Archives of Internal Medicine by Carl H. Greene¹ and his associates, and in the Journal of the American Medical Association by Mann,² McLure³ and others. In the October issue of The American Journal of the Medical Sciences are articles on this same subject by Shattuck⁴ and his associates and by Barrow⁵ and his co-workers.

From a review of these, one gathers that the most popular tests are (1) The estimation of bilirubinemia by the icterus index; (2) The Van den Bergh bilirubinemia test; (3) The Rowntree-Rosenthal dye excretion test; (4) Fructose tolerance test; (5) The significance of urobilinogen in the urine.

The icterus index is based on the fact that though the liver is not essential for the production of bilirubin, it is the sole

excretory organ for this pigment in health. When not excreted by the normal channels through the liver it accumulates in the blood. All recent workers are agreed that it is our most useful single test for the activity of the liver. Shattuck considers it of special value in the diagnosis of cholecystitis and cholelithiasis, while Greene regards it as being of definite assistance in the study of patients with abdominal carcinoma and suspected malignant disease of the liver. All are agreed that in cases of obstructive jaundice the icterus index shows variations proportional to the bilirubin content. It enables one to follow the course of jaundice more accurately than by the ordinary clinical means.

The Van den Bergh test, is considered of value in distinguishing between hæmolytic and obstructive jaundice. It is also of definite value in recognizing latent Its diagnostic importance would seem to be increased when used in conjunction with the phenoltetrachlorphthalein dve excretion test. The test is looked upon as more complicated than the two previously mentioned and is not entirely free from danger. Its greatest value seems to be in cases of disease of the liver, from whatever cause, in which there is no jaundice. A positive result points to liver involvement. In cases of obstructive jaundice, traces of dye may be found in the blood after the serum bilirubin level has returned to normal.

The fructose tolerance test is based on the assumption that the liver is the main store house for glycogen. Any diminished ability on the part of the organ to utilize the sugar, as evidenced by glycosuria and hyperglycemia, has been thought to indicate functional insufficiency of the liver. The weakness in its clinical application would seem to lie in the difficulty of eliminating the possible effects of associated pancreatic and pituitary disease.

The variations in the amount of urobilinogen in the urine as a test of liver function, is based on the now generally accepted fact that urobilinogen is found in the intestines. Some recent workers consider it the only reliable test in the differential diagnosis between simple

catarrhal jaundice and obstructive icterus due to carcinoma of the head of the pancreas and the biliary tract. It is always present in the former and absent in the latter.

In conclusion, we may state that it must not be forgotten that the liver is an organ with a large factor of safety; and that there are definite limitations to the use of functional tests; also that though the present hepatic tests are not ideal, their introduction is another milestone on the road to the better understanding of diseases of the liver.

L. C. MONTGOMERY.

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ON THE IMPORTANCE OF BODY WEIGHT

N interesting article on body weight, by Dr. E. S. Du Bray, appears in the American Journal of the Medical Sciences, October, 1925. The practical importance of body weight is an evolution in the scientific study of nutrition, which may be dated back to the great investigator, Lavoisier, who first emphasized the importance of the quantitative method, and the study of the chemical changes going on in the body, which even then were dimly recognized. Marked strides have been made since then in our knowledge of metabolism, a section of physiology which during the past two decades has been advanced greatly by the investigations in America of Lusk, Benedict and McCollum. The body energy is supplied primarily by food. The potential energy of the food absorbed is liberated in the metabolism and leaves the organism as heat. If the amount of energy available for the body in the food absorbed is greater than the amount expended from the body, the excess is stored in the tissues in the form of combustible materials—proteins, carbohydrates and fat. The capacity of the body to store protein and carbohydrates is limited, so that any considerable storage of excess energy is accomplished by a deposit of fat. The chief physiological factor for the control of body weight is an adjustment of the food intake to the body needs. Normal individuals have a tendency to maintain a certain average body weight, notwithstanding considerable variations in the amount of food intake.

The adjustment of the rate of metabolism to correspond with food intake becomes an important factor only under abnormal conditions.

Various formulæ have been devised for the estimation of the normal weight of persons of different height, sex and age. In practice it cannot be said that any of these standards have been entirely satisfactory. A difficulty arises because of the great number of variable factors which must be taken into consideration. A truly comprehensive formula must take into consideration the following factors: age, height, sex, chest circumference and body build.

Over-nutrition is extremely prevalent, and obesity is one of the most common The amount of public opinion ailments. on this subject is in marked contrast to the small amount of scientific knowledge we have regarding it. Nevertheless, observations are accumulating. Obesity has been divided into two groups; the simple or exogenous type, due to excessive intake of food combined with too little exercise, and the endogenous type in which there is some disturbance in the function of the endocrine glands giving rise to a lowered power of combustion in the system. The exogenous is probably the most common type of obesity. In this condition proper management by the physician, with cooperation on the part of the patient may afford striking therapeutic results. The basal metabolism in these patients is always within normal limits. In the endogenous group a frank endocrine etiology is usually apparent. The cases properly included in this group present, clinically, three classes, depending upon which ductless gland is predominantly involved. First, the thyrogenous class, presenting the well known picture of myxœdema with a definitely lowered metabolic rate. Second, the gonad class occurring practically only in post-adult age; its justification rests on considerable experimental evidence noted in the effects of castration in animals and man; and third, hypophysial class as shown in patients with Frolich's syndrome and its modification. Speaking generally, it is the endogenous group of adiposity where alterations in the normal metabolic rate can be sought with most optimism, and in which organo-therapy offers most from a therapeutic standpoint.

Overweight seems to have a definite connection with certain diseases. association of overweight with diabetes has long been noted. Reduction in weight in this disease is associated with marked benefit, as evidenced by a clearing up of the active symptoms and a gain in the assimilative power. Body weight affords a valuable index of the clinical state, and the diabetic who is maintained at a body weight between normal and fifteen per cent below normal, is in the

most satisfactory condition.

The obese patient has always been recognized as a grave surgical risk, not only because of the mechanical difficulty of the operation, but because he is prone to unfortunate complications such as infection, the tardy healing of wounds,

and fat embolism.

There are three definite conditions which, though in no way part of the general process of obesity are frequently associated with it, namely, coronary sclerosis, hypertension, and atrophy of the heart muscle. Needless to say, these conditions may occur singly or combined, and are increased in their clinical significance by the presence of a high diaphragm. In the present state of our knowledge the most important connection between obesity and circulatory disease is the increased mechanical burden

enforced upon the cardio-vascular sys-At the present time we have no scientific proof of an etiological connection between obesity and hypertension, despite the common clinical experience that reduction in weight is at times followed by a reduction in the systolic blood pressure, and marked improvement

in subjective symptoms.

There would appear to be also some connection between obesity and orthopædic problems. These problems would appear to be of two kinds. One is the association of arthritis and obesity: the other deals more specifically with certain postural and static difficulties combined with faulty bodily mechanics. The postural strains of the lumbo-sacral region are more common in heavy women; the pain is generally of gradual onset, and follows a period of heavy work.

In connection with underweight, Magnus-Levy pointed out, in 1906, the great reduction that took place in heat production, if the basal metabolism is definitely lowered. Another important result of under-nutrition is a decrease in efficiency in the performance of physical labour. Fatigue comes on more quickly than usual, and closely related with this reduction of physical power, mental apathy toward effort becomes apparent. All authorities agree that the under-nourished individual is more susceptible to the sensation of cold than is the well nour-

ished.

Certain important physiological facts have come to light in regard to prolonged under-nutrition. Inanition reduces the number of heart beats per minute. Benedict and others have shown, also, that under-nutrition is accompanied by a lowering of both the systolic and diastolic blood pressure, a fact which, to some extent, may be utilized favourably in the management of essential hypertension. German observers during the World War noted that the restricted war diet had a tendency to interfere with menstruation. This amenorrhoea probably depended upon the great reduction of protein in the diet, and represented a protective reaction on the part of the organism. Undernutrition is also a well known factor in the increased incidence of certain of the infectious diseases, and especially of tuberculosis. The increased susceptibility to cold also increased the number of cases of upper respiratory infection. An important consideration in connection with body weight is its influence on the expectation of life. Oliver Wendell Holmes once suggested that the best recipe that he knew for longevity was to have some chronic minor ailment which one had to take care of. In view of the statistics presented by insurance companies it might be well to amend this formula and add that people should pay more attention to their body weight, aiming to guard against the extremes of both overweight and underweight. Among some of the observations of life insurance companies are the following: For short men, that is, below five feet seven inches in height, and at the age period between forty and forty-five, an excess of twenty per cent in weight involves an added mortality of thirty per cent above normal. In tall people, those over five feet ten inches in height, the adverse situation is even more marked; between the ages of forty and forty-five, a twenty per cent excess in weight carries a forty per cent increase in the mortality rate, while a forty per cent excess in weight doubles the mortality. A slight underweight is to some extent an advantage provided the

percentage of underweight is not too great, Underweight, however, becomes a serious impairment in early adult life. Persons under forty who are five feet ten inches and are twenty per cent below the average weight for their height show an increased mortality of nearly fifty per cent. From the age of forty onwards, however, slight underweight becomes a distinct advantage, for these are the people who have the best mortality rates. From the records of insurance companies we note that those who weigh between ten and twenty per cent below the average after early adult age are those with the most favourable mortality rate. Overweights who have a large chest capacity have a more favourable mortality than those of small chest capacity; while an increase in weight with advancing age is a very common occurrence, the insurance records indicate that this excess weight increases the insurance risk. From what has been said it is evident that body weight is a simple measurement of extreme importance. An individual who presents marked variation in body weight demands careful investigation to obtain a rational explanation of it. Our patients should be made aware of this fact. and unexplained variations in their weight should stimulate their curiosity to seek medical advice.

DEFECTIVE VISION IN SCHOOL CHILDREN

DEFECTIVE vision is one of the most serious handicaps with which school children may have to contend. In its higher degrees it makes the reading of text-books impossible; while in all degrees it acts as a drain upon the system, and engenders eye-strain with its attendant well-known local manifestations and general disturbances. Of great moment, also, is the effect of poor vision upon the development of the mind and the character of the child; for accuracy of perception is possibly more important than the quantitative capacity of the eye to receive impressions, and undoubtedly de-

fective vision has a bearing upon truancy and crime.

The statements of investigators in regard to the prevalence of weak sight among school children vary greatly. Certain writers claim that sixty per cent of the pupils are so affected, while other investigators give a percentage as low as twelve or ten. The figures vary with the conception of what constitutes poor vision; but granting the lowest estimate we still obtain striking data. At a rough calculation there are 2,000,000 pupils in the schools of Canada, that is, there are 200,000 children labouring

under the disability of defective vision in this country. The problem, therefore,

is one of national importance.

Defective vision in children is not always easy to discern. Children are often diffident and slow in making known their symptoms, at least in so concrete a way as to fix attention. So far the detection of poor sight in pupils has been largely a matter of chance observation by the intelligent parent or well-informed teacher or family practitioner. To insure that full justice shall be done to every child with defective vision we must introduce a routine examination of the visual acuity of all school children.

The determination of the visual acuity of school children as a routine practice is being carried out in Canada, but only in a relatively small number of centres. This is due not so much to unwillingness to meet the additional outlay entailed, as to the lack of appreciation of the gravity of the problem; for it would appear that means have always been found for innovations, wherever their necessity has been realized. What is needed for the moment more than anything else is a national campaign of education on this subject, such as is now being so successfully conducted elsewhere. W. GORDON BYERS

ON PHYSICAL EDUCATION

EVEN in the minds of many members of the medical profession there is still a great deal of misunderstanding as to the objectives and the possibilities in a modern course of physical education. Until a comparatively recent date the popular conception of a systematic course of physical exercise in a university was the tolerance of a time-absorbing course that had a certain value in the building up of physical strength, without possessing much value in the way of university education or in the health habits of the individual. To-day, however, the attitude is changing, and instead of such a course being merely tolerated, there is a growing appreciation of the many benefits to the student that may accrue from a supervised programme of physical education, and an increasing recognition of its value not only to the individual, but to the future welfare of the nation. This marked change in the attitude of universities to such a programme has doubtless been accentuated by the facts made known during the Great War, which necessitated a thorough study of the efficiency of our man power, and brought to light the disturbing fact that one-third of our young men, the cream of the country, were physically unfit to render prompt service in its need.

The rapid appreciation of the value of a properly supervised modern programme of physical education is emphasized by the fact that the great majority of educational institutions in America have now incorporated such a course into their curriculum. Eighty per cent of the larger colleges and universities have now definite regulations regarding physical education, and students are required to devote a certain amount of time each week to some kind of athletic or gymnastic activity. The emphasis previously placed upon physical strength and accomplishment, has given way to a much broader objective. The old traditional belief that students derived all possible benefit from any type of exercise indulged in, is only a part truth, and is akin to the fallacy underlying shot-gun prescriptions. It is only through the application to physical exercise of our knowledge of physiology, psychology, pedagogy, and kindred sciences, that physical education is assuming its proper place as an educational course.

Physical education is a means to an end and seeks to promote the health and organic vigour of the individual, and to offer through its programme a laboratory of expression in which the individual may be aided in the acquisition of some of the fundamentals of citizenship. Before attempting any course of physical education a complete medical examination is essential. This should include an examination of all the vital organs to assure their integrity; the careful inspection of the body in action and at rest to detect any faulty posture or physical defect, and the possible presence of any communicable disease. This fitness of the individual for participation in physical activities should be certified by a

physician.

All the ascertained defects such as abnormal posture, spinal curvature, flat feet, round shoulders, and all conditions which might militate against the health of the student's future must receive special attention. Thorough instruction should be given in all the laws of healthy living, and effective measures taken to have these laws ob-Every reasonable precaution should also be taken to safeguard from accident. Participation in selected neuromuscular activities adapted to the age, sex. and development of the student should be insisted upon, as having a most important bearing on the health and future activity of the student. The beneficial effects of such a course are not confined to a mere increase of strength, or an ability to perform a few physical acts in a more efficient manner. The important end to be aimed at is a general increase in organic vigour and in the general efficiency of the human machine. There should be a development of good posture and carriage, of speed, grace, and strength in action, as well as skill. Under proper supervision group activities should be encouraged which permit the enthusiastic participation of the student in acts bringing pleasure and creating interest, and which afford opportunities for the development of mental, social and moral attributes such as loyalty, sportsmanship, cooperation, honesty, initiative, courage, determination, and control of temper, as well as the formation of quick and accurate judgment.

It would be unfair to assume that these attributes of character and citizenship as stated above can be developed in all cases, and it would be fallacious to assume that they can be attained without adequately trained and skilled leadership. A physical course improperly directed may be responsible for exercises which are entirely unsuitable for the individual. Children, and immature boys and girls are too often allowed to perform physical acts which not infrequently are decidedly harmful to their health and future fitness. The attempt to secure response to command as an objective in itself, the desire to win at all costs, failure to observe the ordinary laws of health and hygiene and lack of moral tone in a game, may be recorded as reasons why the physical programme in some centres is severely criticized.

Efficient supervision should safeguard the child against danger, and give recognition to the fact that physical education is but one phase of the general education of the individual and carries with it high ideals in the direction of the child's future. Most of our scholastic training separates the intellectual from the moral and physical. Following Plato's recognition, modern physical education is endeavouring to unite the physical, mental, social and moral welfare in the education of the young and to bridge the gap between knowing and doing.

Such a course requires trained leadership with a thorough knowledge of the problems involved, to prepare a programme which will ensure:

- (a) Practical activities of the big muscle type, specially selected to suit the age and development of the individual; a programme with the emphasis upon participation rather than observation.
- (b) The safeguarding of health through the observation of sanitary and hygienic precautions.
- (c) The inculcation of health habits through a dissemination of knowledge and the creation of a desire and incentive on the part of the individual to observe health laws.
- (d) Training for citizenship and the formation of character through expressed ideals in the guidance of conduct and the emotions.

Physical education needs the sympa-

thetic help and advice of the medical profession in the carrying out of its programme in order that the greatest

possible contribution may be made to healthy, vigorous and virile citizenship.

THE PRELIMINARY EDUCATION OF THE MEDICAL STUDENT

"And, in conclusion, I venture to suggest that the collective sagacity of the Congress could occupy itself with no more important question than this: How is medical education to be arranged so that, without entangling the student in those details of the systematist, which are valueless to him, he may be enabled to obtain a firm grasp of the great truths respecting animal and vegetable life, without which, notwithstanding all the progress of scientific medicine, he will still find himself an empiric.' -Huxley

'HE concluding words of an address delivered by Thomas H. Huxley, at the International Medical Congress of 1881, were never more applicable than they are to-day. The medical student, all will admit, should have a firm grasp of the great truths respecting animal and vegetable life. This implies much more than a thorough grounding in the general principles of biology. He requires a clear conception of the physics and chemistry of the body, and an intimate knowledge of its structure, its development and its functioning. For this he must have a background of general physics and general chemistry, which implies a fair knowledge of mathematics, and adequate instruction in anatomy, histology, embryology and physiology. The easy comprehension of technical terms follows only upon acquisition of a considerable vocabulary of Latin and Greek. Such things are essential before the student can advance to the clinical and allied subjects. Then he finds the need for more chemistry and more physics if he is to follow intelligently the pharmacology of the day, and use understandingly the instruments and paraphernalia which have come into our diagnostic and therapeutic armamentaria. If he is to be truly catholic in his medical interests he must have a reading knowledge of at least French and German. And if he

hopes to become a man of affairs, he must be versed in literature and history and the political problems of the past and present. Was more required of

Gargantua?

We have worried much and arduously over the preliminary education of the medical student. Scarcely a generation ago he was allowed to begin professional studies after a moderately good high school training. The medical curriculum was then a comparatively simple affair. but even so the poorly prepared student was found to be seriously handicapped. Meantime much of what Horatio had not dreamed has come into our philosophy. In consequence sessions have been lengthened, years have been added to the medical course, entrance requirements have been raised, but every school still finds itself with a quota of students for whom the days, like those of Job, are swifter than a weaver's beam and are

spent without hope.

First one year, then two years of "premedical" college work following the completion of four years at high school, was prescribed by the American Medical Association as the entrance standard of schools which would be rated as Class A. We learn that this has not proved a palladium, for the reason that the quality as well as the quantity of the teaching in the required subjects is not the same in all colleges. In Canadian schools, which have always been closely associated with (and usually faculties of) universities, the plan of including the preliminary sciences and certain cultural subjects in the medical course has been generally adopted. This permits of the instruction in the sciences (biology, chemistry and physics) being designed with some particular reference to the more strictly professional courses. It also allows of affiliation of courses in arts or science with

the medical course, so that degrees from two faculties may be obtained by an

additional year or two of study.

Those who criticise the demands being made upon medical students are prone to make much out of the contention that present requirements force many desirable aspirants to a medical career into other spheres. This may be true. Unquestionably many undesirable aspirants are also excluded from the profession, and it may be questioned if many really ambitious young men are deterred from attempting medicine because of existing standards. And we fancy that the satisfaction which the student of to-day will derive from his professional experience will amply repay him for the stresses now being entailed upon his cortex cerebri and tubera ischiorum. We have no desire to unduly burden the student, or to obstruct his way into the profession, but it is in his own interest as well as in the interest of the public that his period of apprenticeship should be really profitable. Thersalus of Lydia, styled "Con-

queror of Physicians" on a monument in the Appian Way, undertook to qualify students for the practice of medicine in six months. He has had his imitators in modern days, but they are not held up for admiration. If our medical student is to get all that may be got out of his career as a physician, he must get all that may be got out of his college course. To this end he must bring to his medical studies a mind already trained to methodical work, already stored with the fundamentals, and already accustomed to something approaching thoughtful reasoning. He must therefore be more matured than the boy fresh from the high school. In consideration of his future success and the happiness which this implies, we feel that every prospective Æsculapian would be well advised if he were to take either a complete course in arts or science before beginning medicine, or such an affiliated course as is available in the Canadian universities in which medicine is taught. W. H. HATTIE

TREATMENT OF PERTUSSIS

THERE recently appeared in the Journal of the American Medical Association a very comprehensive article by the Boston school of pædiatrists on the treatment of pertussis by ræntgen ray. article represents the combined efforts of several men and covers some eight hundred and fifty cases of the disease seen in the three consecutive years since the x-ray treatment for it was introduced at the Boston Floating Hospital. The paper presents several interesting observations on this disease.

Ninety per cent of the cases occurred under the age of seven years, and many cases were met with in very young The seasonal incidence was greatest in the early spring; March and April showing the greatest number of These observers state that the treatment by roentgen ray exposures appeared to be of definite benefit to those suffering, lessening the severity and num- on the apparent length of the infective

bers of the paroxysms even in the late

paroxysmal stage.

In the series which form the basis of this report fourteen cases of convulsions were seen. These were remarkably improved by this treatment. Always within twenty-four hours, and usually within six to eight hours, the convulsions ceased. The manifestation of convulsions has usually been accepted as signifying a fatal outcome, but the prognosis is more favourable apparently, following the use of the x-ray. No new light is shed on the question as to whether the convulsions were due to the action on the central nervous system of toxins elaborated by the bacillus pertussis, or were due to a latent tetany. This can only be ascertained by ruling out the question of tetany by estimations of the ionized calcium of the blood.

Some pertinent observations were made

period of persons suffering from the disease. Cultures of the coughed or expectorated material were made from a number of the cases, and no positive cultures of the bacillus pertussis were obtained after the second week of the actual whooping, which represents approximately the fourth week of the disease. From this it follows that the accepted period of isolation of six weeks after the onset of the whoop could be lessened to two or three weeks with safety. Further, it should be possible to diagnose the disease by cultural methods during the first or second week of the catarrhal stage. The authors got positive cultures from eighty per cent of one group of this series during the second week of the catarrhal stage, before the actual onset of the paroxysms.

As usual in pertussis there was found in the blood a marked mononuclear leucocytosis, a condition which returned to normal more rapidly in the treated series of cases, than in other reported cases treated by other methods. It is suggested that there is a specific complement fixation in pertussis and a permanent alteration in the blood serum as the immunity is usually effective throughout life. Very few instances of repeated attacks of whooping cough have been reported, though three occurred in this

series of cases.

Definite pathological changes in the lungs may be associated with pertussis, which are demonstrable by x-ray. The lesion consists of a peribronchial thickening which is most marked in the descending branches of the bronchial tree, and especially in the mesial portions of the lower lobes. There is an accompanying enlargement of the mediastinal tracheobronchial lymph nodes which is not quite the same in distribution as noted in bronchitis of other causation. In addition, there is frequently a mottling of the lung shadow, suggesting a beginning infiltration or a broncho-pneumonia.

Of the cases which comprise this report, it was found that the younger patients treated in the early paroxysmal stage show the most striking benefit. However, although the percentage of patients

benefited seems about the same, the degree of benefit conferred appears to be more marked and the duration of the paroxysmal stage more definitely lessened in cases treated by vaccine, as well as by the x-ray, the so-called "combined treatment." The vaccine used was one prepared by the authors themselves, as the vaccines available on the market proved too dilute. The mortality in the whole group of eight hundred and fifty cases was very low, only 0.3 per cent, as compared with 6.4 per cent for the whole State of Massachusetts.

The only criticism in reference to this treatment which may be made, and which the authors admit, is the question of the effect of the radiation on the thymus and thyroid glands. Only the future can determine if any damage has been done by the x-ray to these structures. However, the doses are small, less than a skin ervthema dose, so that it does not seem possible that any damage of physiological significance can be caused. Dr. Smith and his associates are to be congratulated on this report. The comparison between the mortality figures of the treated group, and of the untreated State of Massachusetts alone justifies the therapy and the labour that has been expended. Apparently the ræntgen ray treatment, though not a specific, offers when combined with the use of a good freshly prepared vaccine, a method of relief from the paroxysms the most effectual that physicians at present have to offer. Because of the danger, though small, of damage to thymus and thyroid glands the actual radiation should be performed only by those having special knowledge of x-ray therapy.

Since the appearance of the report of the Boston physicians, an article has appeared written by Faber and Struble, of Leland Stanford University in California, which tends to cast considerable doubt on the efficacy of ræntgen ray treatment of pertussis. Forty-four consecutive cases were treated in their clinic, of whom one-half were treated by irradiation and half by the administration of antipyrin (phenazone). Tables and charts of numbers of paroxysms, vomiting

attacks and durations of the disease, and the effect on the leucocyte count, are produced which show that the patients treated by phenazone made a better showing in practically all respects than those treated by the reentgen ray; the average duration of the disease, and of the paroxysmal stage were considerably less; the daily average of the paroxysms and of the vomiting attacks were lower throughout the course of the disease. The authors believe that their figures afford strong evidence against the assumption that the reentgen ray has a curative or even beneficial physical effect in the treatment of whooping cough.

It is to be regretted that the Boston workers had no "controls" (untreated cases), for comparison with their figures of the eight hundred and fifty cases treated. However, one cannot but feel that the cases reported by Faber and Struble are too few in number to immediately discount the work of the Boston group, and certainly the California sunshine and mild fresh air would be more favourable to the disease than the damp, chilling air of Boston. However, it is true in whooping cough as in many other diseases, that the numerous methods of treatment advocated as cures does make one hesitant in accepting any reputed cure with other than a doubting mind. Until more accurate evidence is produced, supported by critical tables and large numbers of cases, one must withhold judgment. As yet neither ræntgen ray nor vaccine treatment can be considered as having definitely established their value in the treatment of this disease.

Since the above was written Goldbloom, of Montreal, has published his experiences in the use of ether by intramuscular and rectal injection. Numerous Italian writers, and some on this

continent, have extolled the use of ether by intramuscular injection, during the past five years. Goldbloom notes improvement in about eighty per cent of his cases so treated, and in only one out of sixty-three injections was there any local reaction; a reaction however, which did not go on to necrosis. He considers that the improvement seen is due to excretion of the ether through the lungs, and the bathing of the respiratory mucous membrane in a weak solution of ether. Hence, the administration of ether in olive oil by rectum suggests itself as being the simplest and safest. He reports demonstrable improvement ninety per cent of twenty-one cases treated by the latter method, the improvement being most marked in those cases well advanced in the paroxysmal stage. The injections were given twice daily, two cubic centimetres of ether in a half an ounce of olive oil.

While the ether expired may have a local effect on the respiratory mucous membranes it would seem much more probable, judging from the work on the production of anæsthesia by rectal administration of ether, that the effect is produced on the central nervous system. the ether acting as a sedative and sopor-

All of which is very interesting. In the articles above enumerated four types of treatment of this disease are discussed: X-ray, vaccines, antipyretic drugs and injections of ether. What a cussed: medley of therapeusis! Many types of treatment for whooping cough have come and gone during the past few decades; let us hope that the problem of treatment is being gradually if slowly solved, and that the efforts of so many men will not be expended in vain.

R. R. STRUTHERS

DIRECT SMEAR IN THE DIAGNOSIS OF ACUTE THROAT INFECTIONS

Western Ontario writing in the Public Health Journal, October, 1925, states that in his opinion there is nothing more removed from an acute sore throat. On

R. F. W. LUNEY of the University of urgent and important in the field of public health laboratory work than the bacteriologist's opinion on the exudate

such a report the diagnosis rests, involving not only the successful treatment of the patient, but the proper procedure to be adopted to prevent any spread of infection. The direct smear is by no means a new method of gaining information regarding the character of an acute throat infection. Long before the introduction of modern methods of judging by the bacterial growth, early investigators forty years ago employed smear preparations of stained and unstained exudates. The literature of the past few years has contained many papers discussing the best methods of securing cultures in throat infections, but little space has been devoted to emphasizing the value of the direct smear. Not a few bacteri-ologists appear to be of the opinion that smears made directly from the swab afford only presumptive evidence. Dissatisfaction, however, has arisen from the delay in the return reports necessitated by cultural methods and by the fact that in some cases negative reports have been given in definite cases of diphtheria. Bullowa writing in the Journal of the American Medical Association, (Vol. 80, p. 240, 1923), expresses the attitude of clinicians when he states: "In the interest of clear medical thinking we wish to express the fallacies that may result from the throat culture diagnosis of diphtheria, and the danger consequent upon delay in making the diagnosis only from a laboratory report instead of making use from the first of the clinical picture." He advises that when in doubt as to the correct interpretation of symptoms, it is always better to give antitoxin needlessly than to err by waiting for the laboratory report. Dr. Luney states that

in the large number of cases examined by him for diagnosis, the direct smear showed a more typical picture than the culture, when both were positive. In some instances the prolific growth of other organisms in the culture greatly overshadowed the diphtheria bacilli, and in other cases produced a less typical morphological appearance of the bacillus in the cultures than in the smears. The records show that direct smears from patients waiting for release from isolation were comparatively unsatisfactory. Occasionally, also, swabs were submitted from a distance with very little exudate upon them, and that in a dried state, from which it was impossible to obtain a satisfactory smear. The bacillus dies out on swabs that are not planted on serum within twenty-four or thirty-six hours. We have also noticed that some other organisms, particularly the staphylococcus aureus produce such a heavy growth as to inhibit and quite overshadow the diphtheria bacillus. In conclusion, he states that as an aid in the diagnosis of acute throat infections, the direct smear is of great value and of equal importance with the cultural methods. It is most serviceable in the early diagnosis of diphtheria, and makes possible an immediate report in over fifty per cent. It is, however, much less satisfactory in throat swabs for release from quarantine: seventy-seven per cent positive cases for release were positive alone by culture. In acute throat infections other than diphtheria, evidence of the nature of the infection is given promptly by the direct smear; in Vincent's angina the direct smear is the only method of making a satisfactory laboratory diagnosis.

ON THE PREVENTION OF CARIOUS TEETH IN CHILDREN

THE medical profession have recently become aroused to appreciate the value of sound teeth. In the past the danger to the whole organism which frequently arose from an uncared for mouth with carious teeth and infected gums was not appreciated. Actual statis-

tics would be bard to obtain but the proportion of adults to-day who can boast of a good set of natural teeth with healthy gums must be a comparatively small one. To prevent this source of ill health in the next generation physicians must impress upon parents the importance of sound,

healthy teeth in their children. We, therefore, observe with pleasure that the public generally are gradually awakening to the importance of all measures which will secure healthy teeth in their children. One of the most important factors in the production of healthy teeth is a sufficiency of calcium and phosphorus in the blood. The calcium need of the child is extremely high; its supply should be, therefore, a chief concern in the diet of children. Dr. Alfred Hess of New York after an extensive study of infants in New York City writes that he found so many cases of children lacking a proper amount of calcium in the blood that he considers all as incipiently rachitic; that is, deficient in blood calcium and, therefore, unable to supply a sufficient amount to their developing teeth. This lack in the calcium supply may be recognised not only by a defective appearance of the dentine but also by the unduly early shedding of the deciduous teeth, and the late appearance of the permanent teeth. In such children this long interval often seriously interferes with mastication and as a consequence impairs nutrition. To correct this a diet containing sufficient calcium together with all the direct sunlight possible and normal exercise are important conditions. Milk is the important calcium food for children. If milk is lacking it is difficult to secure an adequate calcium supply from other foods. Herbst found that boys between six and fourteen consumed three to four times as much calcium in proportion to the weight as is required for the maintenance of man. A child's normal calories for the day are only about 2,000. Of these, about 600 calories should be milk; about one quart is, therefore, required to supply sufficient calcium for the daily need. To supply the same amount of calcium from beef steak and white bread 10,000 calories would have to be consumed. In addition to the quart of milk every child should have some vegetables at its meals, and of these the leafy vegetables are the most important. Fresh fruit should be given every day, and cereals in rotation, using preferably the full grain meal. The excessive use of sweets should be guarded against. Sugar used in too great amounts prevents the absorption of a proper amount of calcium. In addition to a diet containing sufficient calcium and sufficient vitamines every child requires a fair amount of direct sunlight and exercise. With care in these respects children will not be seen a few years old with the majority of their teeth carious, ineffective for mastication, and a source of septic infection to the rest of the system.

One of the most recent statements regarding the ill effects on the developing nervous centres of a child which may arise from the absorption of toxic material from carious teeth is to be found in a paper from Willis A. Sutton, Superintendent of Public Schools, Atlanta, Ga., and published in *The Gateway to Health*, October, 1925.

Mr. Sutton reports a number of cases which were referred to him as incorrigable and recommended for dismissal. After careful scientific treatment of the teeth of these children a very marked change in conduct and ability was noticed, and every one of those treated passed well in his class at the end of the next year. In a group of 987 children, thus cared for, the percentage of failures dropped in one year from twenty-two per cent to eight per cent. Mr. Sutton says: "I am absolutely convinced that the condition of a child's teeth largely determines what he will do in his school work and how he will conduct himself." However, when Mr. Sutton reports that from a group of morons, he, by the simple expedient of attending to diseased teeth, lifted twenty per cent of this class to a normal average, one cannot but feel that the classification of these children as "moron" was at least premature. The striking improvement that is known to follow the proper treatment of tooth and mouth conditions, in both children and adults, is irrefutable, but this like all other measures directed toward the common good, should be employed with ordinary caution and good judgment. The wholesale and unneces-

to-day, especially in the earlier stages of other organ, teeth should be removed or neurotic and mental disturbances, is to repaired, only when diseased.

sary removal of teeth as is often practiced be deprecated. As in the case of any

MORTALITY RECORDS FOR 1925

CCORDING to the Statistical Bulletin of the Metropolitan Life Insurance Company, the health record of American and Canadian wage earners and their families during the first nine months of 1925 has never been equalled during the corresponding period of any past year. This is clearly indicated by the mortality records of the more than 16,000,000 policy holders in that insurance company. Among the white policy holders during these nine months the death rate amountto only 8.2 per 1,000. There has been a continued decline in the death rate from tuberculosis. The rate for the white policy holders 81.2 per 100,000 represents a drop of 17.7 per cent from last year's figures for the same months. There has also been a very definite improvement in mortality rates for the principal diseases of childhood. Measles, scarlet fever, whooping cough and diphtheria present all lowered rates. Not only is the death rate from diphtheria 10.6 per 100,000 the lowest ever recorded among the industrial policy holders for any similar nine months' period, but the rate for the third quarter of 1925 is only 7 per 100,000, a new minimum for any three months' period. The record for pneumonia and other respiratory conditions is also satisfactory, with pronounced reductions in

the rates over prior years. There has been a stationary rate for diarrhœal complaints, which really denotes improvement as we would expect higher mortality in view of the great saving of infant life. One of the most favourable items in the health record is the lower death rate recorded for puerperal diseases. This applies to both white and coloured women, and to the two principal diseases of this period puerperal septicæmia and albuminuria, as well as for maternal diseases as a group.

Alcoholism caused 356 deaths during the first nine months of 1925. This may be compared with 342 deaths during the same period of 1924. Twenty-one deaths were due to poisoning by wood alcohol. Since January 1st, 1922, a period of three years and nine months, alcoholism caused the deaths of 1,528 industrial policy holders. Of these 1,514 deaths occurred in the United States, and only 14 in Canada. The record during 1925 for automobile fatalities has been extremely disappointing. The automobile accident death rate again reaches a new maximum this year. Attention is directed however to the fact that in certain cities vigorously applied safety measures have been effective in reducing the death

SERUM IN THE TREATMENT OF ACUTE POLIOMYELITIS

IN view of the reported prevalence of infantile paralysis throughout the United States during the past summer, the attention of the profession is drawn to many recent reports of the successful treatment of this disease by the employment intrathecally as well as intravenously of the serum of convalescent cases. In a letter appearing in the Journal of the

American MedicalAssociation, George Draper of New York records very satisfactory results from the use of homologous serum from convalescent cases, but in considerably larger dosage than has, heretofore, been employed when administered in the preparalytic stage of the disease.

He cites the story of its use in a child,

aged four and a half years, who developed typical symptoms. Examination of the spinal fluid showed 500 cells per c.mm. The patient was quite toxic with a temperature of 102°, when the injection of 15 c.c. of serum from a patient who had recovered, was given into the spinal canal, and this was followed almost immediately by the intravenous injection of 50 c.c. This intravenous injection was repeated twice, at intervals of four hours. Within a few hours of the third dose the child appeared better, the temperature fell to normal and no paralysis developed.

The previous results obtained in patients treated with convalescent serum was not very encouraging. This, Dr. Draper attributes to the fact that insufficient quantities of the serum was

used.

The amount of serum used in this case, 15 c.c. intrathecally and from 150 c.c. to 200 c.c. intravenously, in the course of from twelve to twenty-four hours, would appear to be a reasonable dosage.

Dr. Draper emphasizes his opinion that, for the successful prevention of paralysis by the use of serum from convalescent patients, it is essential that a pre-paralytic diagnosis be made and that a sufficient amount of serum be administered by both intraspinal and intravenous routes. The inference is made that in times of an epidemic, the physician should be on the alert for the appearance of the earliest evidence of fever or gastrointestinal disturbance, and an early resort to lumbar puncture; the estimation of the cells in the spinal fluid, will prove an invaluable aid in making a pre-paralytic diagnosis. The question of obtaining the necessary amount of serum, involves some difficulty but there is no reason why this difficulty may not be overcome, as has been done in the case of transfusions.

Two references are made to serums obtained from animals such as Rosenow's serum; first, that no serum produced by the inoculation of the horse with streptococci has ever been able to neutralize the virus capable of producing the disease experimentally in monkeys; and secondly, that the danger incident upon the introduction of a foreign serum into the spinal canal of patients suffering from poliomyelitis, should not be overlooked.

Editorial Comments

AN OSLER MEMORIAL VOLUME

The International Association of Medical Museums will shortly issue a memorial volume of appreciations, anecdotes and reminiscences of Sir William Osler by over one hundred colleagues, friends and pupils. The volume is prefaced by a foreword by Professor William H. Welch and a poem by the late Sir Clifford Allbutt, followed by some 600 pages of memorial contributions, with over sixty engravings and half-tone illustrations. At the end, there is a complete reasoned bibliography of the writings of Osler, based upon the chronological bibliographies aleady published by Miss Minnie W. Blogg (Baltimore) and Dr. Maude E. Abbott (Montreal), followed by a bibliography of "Writings about Osler," and a list of advance subscribers. The Osler bibliography is as complete as the labour of several efficient

collaborators could make it, and has been extensively annotated, in accordance with Osler's expressed preference for "a combination of biography with bibliography, viz.: "To be of value to the full-fed student of to-day, a bibliography should be a catalogue raisonné, with judicious remarks and explanations." (1918). The anecdotes, reminiscences and biographical notations in the memorial volume will thus supplement, in a manner, the Cushing biography, which has attracted such widespread interest among the laity as well as among the medical profession. The present edition of 1,500 volumes is supported by private advance subscriptions and by a publication fund, inaugurated in January, 1921, by initial contributions from the National Research Council (Washington), the late Sir Edmund Osler (Toronto), and others. Advance subscriptions (\$10) may be made by cheque, made payable to the International Association of Medical Museums (Osler Memorial Volume), and addressed to Dr. Charles F. Martin, Dean of the Medical Faculty, McGill University, Montreal, Canada.

ANNUAL REPORT OF THE CANADIAN TUBERCULOSIS ASSOCIATION

A concrete illustration of the development in anti-tuberculosis work is to be found in the recently issued annual report of the Canadian Tuberculosis Association. This is the twenty-fourth annual report and it provides unmistakable evidence of striking progress. Some of the new developments brought out are: the establishment of free chest diagnostic services in British Columbia, Saskatchewan, Outario, New Brunswick and Nova Scotia; increased facilities for treatment in sanatoria, and surveys of school children in six provinces.

In addition to the reports from the various centres and institutions this report contains a number of papers on tuberculosis, which were read at the annual meeting of the Association in Ottawa and some of which we have already published.

We can only add that there is great encouragement in this report. It reveals steady and ever widening activities with signs also of most gratifying interest and assistance from provincial and Dominion governments, and not the least the Sun Life Assurance Company of Canada.

We have received a report on the activities of the McGill Alumnæ Hospital Libraries which gives interesting details of the work done by them since their establishment in 1917, when the opening of the first military hospital in Montreal gave

rise to the need for a library for the patients. From this modest beginning there developed nine separate libraries established and conducted by the McGill Alumnæ Society.

Recognition of such benevolence has doubtless been shown by the men who profited so greatly from it, but we must add our word of praise for the carrying on of such steady and for the most part voluntary work. The value of books in hospital life needs no elaboration, but one has only to look through such an account as the one mentioned to see that it required no small degree of unremitting and largely unrecognized work to carry on and develop the work done by these libraries.

Many of our readers will remember the Canadian Military Hospital Barracks at Salonika during the War. Mr. Frank Yeigh, the Canadian Representative of the British "Save the Children Fund," writes us that he has recently visited that city and the old barracks, which he found crowded to overflowing with thousands of Greek refugees forced out of Turkish Asia Minor under the Treaty of Lausanne. He describes the condition of these women and children as being tragic in the extreme and counted no less than twenty families in one barrack, subdividing their limited living areas with old curtains and rugs. There is a great lack of food and clothing. The "Save the Children Fund" has established a refugee kitchen in this area, now called Kalamaria Camp. Thousands of the children are provided by it with one meal a day of soup and bread. Mr. Yeigh is making a strong appeal to Canada to join, with other parts of the Empire, in feeding these unfortunates through another winter. The Honorary Treasurer of the Canadian Committee is R. J. Dilworth, 86 Adelaide St. East, Toronto.

Association Rews

AMENDMENT TO BY-LAWS

For the information of members attention is drawn to a change in the By-Law affecting reduction of annual dues. Whereas the notice of motion to amend the By-Law included full time laboratory workers, the By-Law as finally passed

applies only to recent graduates, the fee now being \$3.00 for the first year after graduation, which establishes membership until January of the second year after graduation; \$5.00 for the succeeding year and the full fee (\$10.00) thereafter.

Men and Books

SEVEN YEARS AFTERWARDS*

George Gibson, D.S.O., M.D., F.R.C.P.E., formerly A.D.C. to G.O.C. 1st Canadian Division, D.A.D.M.S., Canadian Corps.

THOUGHT Romance was dead. I had begun to think it had departed with the fairies, or had vanished with the laughter of yesterday. I was becoming used to a life of street cars, strikes and solemnity. An existence that had something about it suggestive of an anticlimax, after the brave days of old, a memory of the greatness that had passed away..... Then the summons came, and I knew that I was wrong. Romance was not dead, merely hiding its headnow to bob up when least expected. There was still one thrill left. For a brief space I was again to don the armour of youth, again to revive the occupation of an A.D.C., again to drive round with the General, and live for a few short hours, the same old friendship, the same old times and scenes.

After two days' lotus eating with General Brutinel, we slid away from Paris. Passing through Roye, we zig-zagged through those villages which saw the end of the fighting in the battle of Amiens. Here and there we stopped. At Warvillers the big concrete dugout that sheltered a German divisional commander has been removed. A polite, unsurprised butler showed us round. Here were tennis racquets, croquet mallets, deckchairs, a billiard table, all the weapons of peace. The last time I called, it was General Tuxford's headquarters; a sentry on the gate, signallers laying a line of wire, maps on the wall and all the orderly bustle of a brigade staff in action. As I had walked outside to call on Paul Tudor of the 5th, a persistent aeroplane buzzed overhead, and shells were falling in the garden. Now all is calm and quiet. I don't know whether the villagers were at supper or still at work in their harvest fields, but I thought I heard the sound of yawning as we passed down the deserted streets. The countryside seemed drugged with the fumes of peace.

We slept in Amiens; Amiens going full blast in the Somme days; Amiens deserted as the tomb in August, 1918; and now Amiens, not very gay, perhaps a trifle dull, but eminently sedate, as behooves a city with a more or less lurid past. In the evening I wandered down the Rue des Trois Cailloux, peopled in the twilight by many ghosts. The "Gobert" stands where it did, but "Charlie" I failed to find. I was sorry, for I remembered a medical meeting, representative of the 1st Canadian Division, that gathered there after the third tour of the Somme Battle. Cocktails and crushed ice, oysters and omelettes, it was worth all the mud of the Somme to get back to the flesh pots of Amiens.

In the morning we traveled along the Roye road to Domart. From here the way was eastward along that road amidst swamps, narrow, twisted and confined, down which on August 8th swept the wild view-halloo on the heels of the flying Bosch. At dawn, halfway between Domart and Hangard; stood the cars of the 3rd Field Ambulance, waiting for the infantry to go over the top. At the junction of the five roads just north of Demuin, the whole land was full of Highlanders; the 3rd Brigade, passing after taking all their objectives to let the 1st Brigade go through. At Aubercourt, Canon Scott limping with a blistered heel, refused a lift in an ambulance car. Blistered heel and all, he was to win the D.S.O. the next day at Warvillers. At Cayeux the Bosch machine gunners held up the advance, until a tank waddling through the village convinced them it was time to quit. And so on to Caix and the final objective, a mile further on, well on the way to Rosieres and the old Somme Line.

What a day's hunting it was! With the Canadian pack going full cry, no wonder Ludendorff put a black mark against it in the calendar. Fourteen miles without a check. Men falling out, dead beat, in their effort to keep up with the chase. Battalions arriving on their final

^{*}Being some account of a visit to the Battlefields of France and Flanders with General Sir Arthur Currie, G.C.M.G., K.C.B., and Garner Currie. During the tour for which General Brutinel lent his car, we were assisted on our way by Captains Simson and Lacroix, of Col. Hughes' staff in Arras, and Col. Goodland and Capt. Higginson, of the Imperial Graves Commission.

objectives with only three men slightly wounded!

Away to the right is Mezieres, out of which General Brutinel shelled the enemy with trench mortars mounted on motor lorries. Between here and Caix, Colonel Donaldson, nosing too far ahead with his ambulance waggons, was accused of trying to capture a wood in front of the Scots Greys.

The country is now much changed. Grassland dotted over with clumps of trees, on the second day of the battle, it looked like Salisbury Plain during manœuvres. Infantry advancing in extended order, guns unlimbering and opening fire, cavalry and tanks moving forward or pausing in depressions in the ground. Wire, there was none, the enemy guns were all captured and for the moment it was a war of movement. To-day swords have been hammered into ploughshares, stooks c. corn stand where formerly the infantry advanced. Fat cart horses drag gigantic farm waggons where the guns barked defiance. Gone are the cavalry and tanks; cabbages and turnips flourish in their stead.

From the Field of Amiens we drove by way of Bray to Albert. Here, if you know what to look for, are plentiful signs of war. The Virgin no longer hangs her head above the main street, but the church is still a gaping ruin, as when the last shell fell in the town. At the corner, the school we knew so well, the main dressing station during the Battle of the Somme, has been rebuilt. A parvenu row of houses, pressing ostentatiously to the front in new built magnificence, rather obscures it, but it is there none the less, with the Ancre flowing at the back door.

The city square where General Currie was knighted by the King has hardly been touched; a few new houses and many unsightly gaps. Along the road to Tara Hill we passed the Chateau that once housed the "Brains" of the 1st Canadian Division. I refer to "C" Mess. Outspoken, argumentative, intolerant, livery and altogether lovable "C" mess, with Canon Scott perpetually pouring oil on the troubled waters. I remember a shell that fell outside the window just before the port was passed. If it had been five minutes later no one would have minded.

Up the road past La Boisselle. What a road! They used to tell us it led to Bapaume. They might just as well have said to heaven. It was straight and narrow enough in all conscience.

And difficult of access as a needle's eye. It was shelled all the time with bombing and machine gunning at intervals. Not a health resort in '16. Three blasted trees on the skyline, a puff of smoke, a sausage rampant, and the biggest battle of all time said to be in progress.

Pozières, a village of new brick houses, seems quite rebuilt. Here Jeffs was wounded and Colonel Ross was the first to evacuate stretcher cases by trench tramway. We visited Courcelette where the Red Chateau was, with Donaldson, Mothersill, Ramsay and Scott all working there on an October night in '16. The sunken road down which the wounded were evacuated by horse ambulance after dark is still there, but the collecting post, where Templeton, Creighton, McQueen and Teddy Fortin met on a night of heavy shelling, has vanished.

Through this now well-tilled land are many cemeteries. Tara Hill, Ovillers, Courcelette, Regina Trench. Here are the names of many vanished well-remembered friends. think you will escape sadness in revisiting the These cemeteries are peaceful, battlefields. beautiful spots. Precise, meticulously trim, the graves in orderly rows preserve a military air. There they lie, their battered shields and dinted helmets already hanging in the Halls of Valhalla; colonel and private side by side, in the true democracy of death. I wonder are they tired waiting. Do they dream of the time when the armies gathered together before the day of battle?

Another time our way led eastward from Arras through Neuville Vitasse, Guemappe and Cherisy. To the left Monchy le Preux taken by the 8th Brigade and the Bois de Vert and Sart which fell to General Ormond. There was little show and circumstance about the War. The long period of treach fighting, the struggle in the mud stamped most of the gilt and trimming out of the business. But Cherisy tried a noble work of redemption. Outside General Macdonnel's headquarters in September, '18, horse, foot and guns, as far as the eye could see, stretched Canada's Khaki host. Here was our army fresh from one victory, thirsting for another. Here was all pride and glory, the flash and sparkle, the jingle of chains and the tossing manes. Everyone aflame with confidence; sunshine lighting up eager faces, all the gallantry of a

great achievement, all the dauntless splendour of youth..... And where is that mighty host now? Vanished away like a scud of cloud upon a windy day. Divided by distant seas, scattered to the winds of heaven. And now the bare and lonely fields which had been peopled by that glorious array; the corn in sheaves, and one old man with a bent back tending a cemetery under a hill. If man is not humble, it is not for the want of having his lesson taught him.

Seven years after, all but a day, we again crossed the Hindenburg Line, and later passed the Drocourt-Quéant Switch. Here two Canadian V.C.'s were won. Clark Kennedy's at Cherisy and Cy Peck's beside Cagnicourt. Along the skyline lay Crow's Nest, Upton Wood, and Ocean Work, recalling their captors, General Tuxford, Griesbach and Loomis. And so we came to the sunken road that leads into Inchy, where the ambulance cars stood waiting for the 1st Division to cross the Canal du Nord.

Colonels waiting at dawn in sunken roads for the attack to commence; shoving their ambulance cars on the heels of the advancing infantry; regimental doctors hanging tenaciously on to their battalions; these held their duty very high. McCrae composing his matchless poem in a dugout on the Yser Canal; Mosher killed at the head of his ambulance; Glidden dying at his aid post; and Hart taken prisoner in a vain attempt to save his wounded; there can be no doubt as to their effect upon the troops' morale. These were not wasting their time, none contributed more than they to the ultimate victory. Napoleon, who knew most things about war, realized the necessity of a good medical service. The corps commander's dictum was very much to the point, "It's not fair to ask men to fight, unless you give them the very best when wounded." And I think the men knew. They realized that no matter how badly they might be hit or where they might lie, they would be found and brought in.

In the evening, we wandered through Arras. Arras now still and peaceful, without the sound of guns. We viewed the Grande and Petite Places with the Spanish fronts to the houses, looked at the wreck of the cathedral, hollow and crumbling as a rotten tooth, and passed the time of day with the concierge at the Hopital St. Jean. Here was the Main Dressing Station during the fighting in August and September, '18,

with Charlie Vipond just up the road at Ecole des Jeunes Filles.

Another day saw us on Vimy Ridge. Here, if anywhere, was Canadian history made. At Thelus crossroads stands the monument to the Canadian gunners as solid and enduring as the Great Pyramid itself. Further on, near where the road branches for Farbus and Willerval, stands the 1st Division Monument. For here the "Old Red Patch" shoved its nose further into the enemy line than anyone else; further than its own sister Canadians on the left, further than the hard-fighting Highland divisions on its right.

Vimy Ridge is much as it was in the summer of 1917. Most of the wire has been removed, but shell holes and communication trenches overgrown with grass and weeds are everywhere. Several dud* shells, a rotting ammunition box, and a solitary tin hat, told of days less peaceful than the present.

Towards the northern end of the famous spur is the place selected for the principal Canadian war memorial. It would be difficult to imagine a better site; Vimy Ridge is so completely Canadian. Here as the rising Canadian battle tide rolled forward in attack the eager troops saw for the first time the promised land, as they looked across the Bois de l'Hirondelle towards Lens and Avion. The corps took the ridge in '17 and held it in '18, and when most of the line moved back, there the corps remained. Remained with the corps commander's order ringing in their ears:

"I place my trust in the Canadian Corps, knowing that where Canadians are engaged there can be no giving way. Under the orders of your devoted officers, you will advance, or fall where you stand facing the enemy."

From Vimy we drove to the back area; through Aux Rietz where Sir Andrew Macphail completed his classical reconnaissance of the front line; past 1st Division Headquarters where Colonel Ford and Ross Napier were wounded; by Mont St. Eloy with its twin towers looking much the same as they did nine years ago. There Gus Richardson used to live and entertain his friends to priceless Lucullian banquets. Next to Camblain L'Abbé, once busy as a beehive, now

^{*&}quot;'The word dud must not be used." -G.H.Q. Order, 1917.

steeped in slumber. Here that happiest of families, the Corps Staff, burnt the midnight oil and lived a life of monastic austerity. At Quatre Vents, where the Corps Main Dressing Station was at the time of Vimy Ridge, a trace can still be seen of Percy Wright's road. At Gauchin Legal the stone that guarded the villagers morals is still chained to earth in the tiny square. And so to Houdain where, as the cook had gone on strike or holiday, we had to postpone our lunch until St. Pol.

From St. Pol we ran east to Tinques where on a wonderful 1st of July the Canadian Corps Sports were held, and a few days later the Highland Games with the record parade of pipes and drums. From there through Aubigny, Cambligneul, Quatre Vents, Gouy Servins,—we might add "les Bains" referring to the bath tub of grateful memory and the disinfector where David slew his ten thousands—past ghostly Ablain St. Nazaire and resurrected Souchez to Lens.

Everywhere in the old battle area are signs of war. People will tell you that all traces of the great disturbance have been effaced, and that you won't be able to find where the front line was. Don't believe them. Is it possible that they don't know what to look for and are visiting the front line for the first time? Much has been rebuilt and is rebuilding. New cottages and churches are everywhere. But seek and ye will find, shattered tree stumps, woods dwarfed and stunted, eloquent of past bombardments; the wreckage of shelled houses, raising their unthatched rafters to heaven, like the ribs of some mighty corpse. Old German wire-you know the sort, half a dozen spikes to the inch-supported on German uprights encloses the fields, while corrugated iron pierced by many a hole lies in the hedgerows.

Lens is a new city, pretentious, amazingly lacking in beauty. A coal mining town which has not had time to get dirty, it suggests a collier with a clean face. I felt no elation at entering Lens for the first time, and my affection for the city was not increased when the local druggist mistook me for a German. I wonder what Lombroso would say about that.

Just north of Lens is the celebrated Hill 70, where the 9th (Scottish) Division did such hard fighting in '15, and where the corps commander as such won his first victory in August, 1917.

The ground is still a maze of shell holes and trenches. Over there the Double Crassier and the Tower Bridge dominate the villages of Loos, while further back are the roofs and chimneys of never to be forgotten Bully Grenay and Mazingarbe. I remember a man applying for ten days' leave in Bully Grenay. But that is another story....

Between Hulluch and La Bassée we skipped from "Lens 11" map on to the old "Hazebrouck 5 a," and edging west crossed the La Bassée Canal by the Old Pont Fixe. Here places are more difficult to identify. Iodine House with its low, but comfortable cellars has been swept off the map, but Windy Corner remains. The Corner must have been extremely breezy in its day, for the old house which was battalion headquarters has been blown away. Harley Street, that most undesirable locality to practice medicine in, has been rebuilt. It used to be a fashionable neighbourhood. I remember Gardner, Crozier and "Doc." Brown all with their plates up there in June, '15.

Festubert is a new village. The church has been rebuilt. An unfamiliar house stands on the site of the doctor's old home. The aid post used to be in the cellar there, and across the way in a thatched house opposite, which was about as bullet-proof as a band box.

After crossing the battle-field of Neuve Chapelle, we turned down the old familiar way at Croix Blanche. It was like revisiting the scenes of one's childhood. Down the road we passed the regimental aid post. Transport Farm has a new haystack still in the same place. Dead Dog Farm is a mere remnant, but the site is there to be seen. The old convent wall now sadly shrunk is still there, and still some stones of the convent itself. Here the 5th and 7th Battalion relieved one another, and here the medical officer slept in a funeral hearse with his feet on an iron tombstone. Nelson with his coffin in the cabin of his flagship, seems only half prepared for eventualities compared with that regimental M.O.

The way to the front line is as wet and muddy as ever. The convent garden, where once the feet of the nuns trod so gently, is a streaming desert of weed and waterlily. We returned by La Boutillerie where Mothersill and Padré Woods used to share the amenities of the rival aid post, to Fleurbaix. Here was the battalion

headquarters; McHarg, Odlum, Gardner and the medical officer sitting down to dinner. Never a more joyous or happier quartette—and now one lies in Poperinghe, one at Agnez-les-Duisans, and the other two are separated by half the world.

Another day we ran through Armentières to Plug Street. Here for a brief space in February, '15, we were neophytes, serving the last hours of our apprenticeship in the trade of war. Here we got shelled for the first time, and here we dimly perceived that war might be a serious business after all.

Turn to the right at Hyde Park Corner, past Kent House, the bottom of Mud Lane and on by Hennessy's Chateau; this was our own home town. Every yard is familiar ground. Here is Ash House, headquarters of the 5th and 8th Battalions. Look at Seaforth Farm where the dead cows polluted the atmosphere, and made impossible beef tea of the water supply.

Over there is Irish Farm, and just in front the Winter Trench, and the old front line, the jumping off place of the first of all trench raids. The 7th Canadian Infantry will always have that to their credit. Petit Douve Farm has not been rebuilt. Large lumps of concrete lie about in the grass, remnants of those fortifications which our artillery and trench mortars pounded so mercilessly until the shout went up from the German lines, "Have a heart, Canadians, have a heart."

We glided up the road into Messines. So easy now; so difficult then. The church is not rebuilt. Without it the town looks strange, scarce recognizable. It is a curious feeling sailing along roads, up which we have gazed so often; up which we were not allowed to pass. The deep interest of looking back and seeing just what our position looked like to the Bosche. In the early days he seemed to have all the trump cards up his sleeve. Wytschaete, Passchendaele, Vimy Ridge; we always down below, he always up above.

Round Hill 63 we circled. There is now a new La Rossignol. A windmill twirls breezily on the ridge where the Doll's House used to stand. North and South Midland Farms, Boyle's Farm, Dead Cow and Stinking Farms, they are all there in new unruffled plumage. Creations of a day, why should they not be? They know nothing of war. There is McHarg

Place, Currie Trench, Armstrong Trench; for a brief space they sprang into the limelight, now I fear too soon forgotten. La Plus Douve, where Bairnsfather's pictures on the whitewashed wall kept a gallant colonel from sleeping, is a new and ornate building.

Red Lodge still stands; a little more disreputable and dilapidated than it was wont. Here on a July morning in '15, the Listening Post was born, the daughter of the regiment, the spoilt darling of the seventh battalion. Capt. Orr and the M.O. were father and mother to the noisy brat. She is a young lady now, but I am glad to say that like Charlie's Aunt, she is still running.

I looked into the basement of Red Lodge; it is so little changed I almost expected to see Gilson sitting there, along with Sgt. Major Griffiths. Up there on the hill was Foghorn Macdonald's log cabin, and close by is Rosenberg Cemetery. This was the little Canadian cemetery started by the 2nd Brigade in the summer of 1915, and here the graves are just as well kept, the borders just as trim as when we were there to look after it ourselves.

Court D'Reve gapes roofless to the sky. The sentinel stands no longer at the gate. Here was General Lipsett's headquarters; climb up the wooden steps over the window sill and there they were, Prower, Humble, Raddall and John Peter Mackenzie, waiting for you to drop in to tea.

Over there by the Piggeries is Grand Munque Farm which the M.O. nearly burnt to the ground in a praiseworthy effort to asphyxiate the flies. The column of black smoke rising suddenly by day so attracted the Children of Israel opposite, that they added to the merriment of the occasion by straafing the farm with coal boxes. From here we ran to Petit Pont where General Currie used to have his headquarters, through Neuve Eglise, past Kemmel and Voormezeele to Ypres.

As we crossed the moat and ran through the reconstructed Lille Gate we saw we were in a new city. And yet not entirely new. The mighty walls that endured so much, still bear on their battered face the signs of many a fierce bombardment. The familiar Cloth Hall is untouched. General Macdonell's headquarters in the wall can still be found and a line of rotting stakes, shows where his bridge ran across the

moat. The Rue de Lille, a thing of battered brick, twisted iron-work, charred timbers, dirt and desolation, now smiles a sunny welcome; twin rows of new built doll's houses. The Cathedral of St. Martin is abristle with scaffolding. The Grand Place is swept and garnished. The Station Square where the 17-inch shellholes were, is now ablaze with flowers.

Those who saw the old indomitable Ypres in the throes of its supreme agony will see in this restored city, something unreal, a trifle unbe-"Resurrexi" is its motto, but it is lievable. not for us. We thought too much in terms of flesh and blood-yes and of iron too-to understand this symphony in brick and plaster. We stumble round the corner to seek Big Jim Macdonald's dugout and run into a drugstore. We look for Tommy Irving's Nissen Hut and find a hotel. We listen for the dull roar of guns and hear the clatter of a dog-drawn milk cart. In the evening we wander across the square and on the battlements gaze towards the east. A few lights, the lamps of cottages, blink from the Menin Road, but the lights we knew, the German flares, that seemed to rise and fall all round us, those footlights of a great tragedy, are no more. Even the swan that used to hide during bombardments under the bridge at the Lille Gate is dead, and the Ypreans haven't had enough imagination to engage another.

But I was grateful for two things. They have left us the Prison and the Asylum. You can do a lot with two such institutions. In their own small way they have a gallant past. Not picturesquely tragic like the Cloth Hall, but gracious and merciful none the less. For each in its time was a main dressing station. They are much as we left them, apparently deserted, and one is amazed at the social well-being of a city that seems to be without criminals or lunatics.

And yet another tag of yesterday remained to recall the dull grey skies of those far off Passchendaele days. Perhaps it was imagination; sense colouring of a dream. Ever and anon it came, wafted on the shifting wind, like a ghost of its own dead past, that haunting, sickly smell, born of exhaust pipes, high explosive, sour wet earth, and gas.

One day we drove along the Menin Road. Half a mile from Hooge, where is now a new chateau, we turned to the right. Here is a broad Canadian avenue lined by maple trees, leading to the memorial site on the twin Hills 61 and 62. What wonderful observation points the Bosche had until we pushed him off these heights! Looking west over Sanctuary Wood, Square Wood and Bydand Copse, he gazed right down on the stagnant waters of Zillebeke Lake, peering almost into the square of Ypres itself. Up the ridge in front of us stormed the 13th and 15th Canadian Highlanders to attack, on the morning of the 13th June. To the left is Mount Sorrel, further over Observatory Ridge, with Maple Copse in the hollow. Beyond is the Snout, further on Hill 60 and the Bean and Pollock Trenches. It is extraordinary how easily the names come back. There is the Dump, where we had our first concrete M.G. emplacement, and beside it Verbranden Molen capped by a new windmill.

Another day we sped out by the Lille Gate and turning to the left made for the familiar precincts of Transport Farm. Hither night after night in all shades of darkness, Dink Graham and Foghorn MacDonald with much persuasive eloquence brought the 5th and 8th Battalions' Transport. Here Mothersill had his aidpost during the fighting on the 2nd June, while over at Railway Dugouts, Generals Lipsett, Tuxford and Brutinel planned how to make things must unpleasant for the Hun.

"Across the fields by Blauwe Poort Farm, turn to the left behind the Dump, down the communication trench—only waist high—and you come to the Railway Cutting. Go quickly through the sand bag barrier and jump across the track. 'Hurry up. The Bosche have a fixed rifle on this spot' "—and so up the left side of the track to historic Hill 60.

Amid mine craters, shell holes and blocks of concrete, the inhabitants were digging for souvenirs. Everyone was doing it. Small children importuned us to buy empty cartridge cases, bits of a rusty bayonet. A collie dog burrowing busily, joined in the hunt for hidden treasure.

Later we made for Bedford House. The Chateau has not been rebuilt. It must have been roughly handled since the days when we knew it in '16. The Hun never took it, but a lettered stone further up the road on the canal bank shows he was very near. Further on Langhof Farm leads to the Old Spoil-bank and the crater the Germans blew in the summer of '16. Over to the right are Swan Chateau, Gold-fish Chateau

and Café Belge—"Stop smoking at Cafe Belge," and the infantry used to know they were getting near the front line.

There are fewer traces of the great disturbance in the Salient than elsewhere. But they are there in plenty all the same. Bedford House lies in ruins in a wood of tragic tree trunks, Hill 60 and the Dump are mounds of desert soil, the Spoil-bank, a grass grown waste of weeds, is seamed by the furrow of many an old trench. More intimate signs are to be found. Old tin helmets and cartridge clips can occasionally be seen. I saw two children in Ypres playing with one of our water bottles; on Hill 60 the remains of two old gum boots flapped on a strand of barbed wire, while further up I saw two goats tied to a bayonet and a rusty rifle.

From Ypres we ran west along the main road to Poperinghe. That Via Dolorosa along which the armies of an empire marched. Millions have passed that way; to countless thousands, the path of glory leading to the grave. It is just the same broad highway, dusty white in the shade of its poplars. But how deserted, how different from the days it teemed with ammunition lorries and ambulance cars!

At Vlamertinghe we saw the Old Mill. Most comfortable of homes, most commodious of dressing stations. The chimney still stands. Monument to the futility of misplaced zeal. An ambulance commander, thinking the chimney attracted shelling, decided to bring it down. Bricks were removed from its base and billets of wood inserted in the most approved style. It was then found to be the one landmark left standing in the Salient. If it fell the entire artillery, having nothing to set their dial sights by, would at once go out of action. "Those damned doctors, again."

Last of all, we proceeded up the never to be forgotten road. That string of three small villages, that stand so deeply printed in Canadian history. St. Jean, Weiltje and St. Julien. Here on the left is Highland Farm where Scrimger won the V.C. Over there is the wood where the 10th and 16th Battalions made their historic charge. At the Keerselaere cross roads is a mighty Canadian monument. Conceived on gigantic lines, this granite figure, its head bowed in reverence of the mighty dead, is expressive of dignity and devotion. This is no fleeting fancy,

but a feeling that remains. Other obelisks and memorials leave a mere jumble of impressions behind out of which our huge Canadian, mourning so silently and steadfastly, stands like a beacon amid vague memories. One could hope that other granite warriors, just the same, might be put to guard our other battle sites. Then in the centuries to come, pilgrims coming to view the grave of some remote ancestor, and lifting their eyes to a silent giant sentry on a hillside will say, "Lo, another Canadian battlefield. Surely these must have been great fighters."

Eastward we moved past Enfiladed Crossroads to Kansas Cross. Just across a field lay Fortuin, the headquarters of the 2nd Brigade, where Kemmis Betty and Mersereau were wounded, and where General Currie moved into the hedge when the roof was burned above his head. Here at Kansas Cross was the corduroy road, that main artery to the front that led from Wieltje across the mud. Up that miry way came Colonel A. E. Ross, in a Ford car, on his daily round to the advanced dressing stations, Bridge House, Somme Redoubt, Keir Farm, Bellevue, Waterloo and Tyne Cot; the car slithering on the greasy planks, and sliding into the slime, only to be lifted bodily back on to the road by the old Queen's football player.

From Kansas Cross we walked up to the Gravenstafel Ridge. To the right Hart was taken prisoner, trying to save his wounded. Here at the Crossroads, Col. Tuxford had his head-quarters and here Majors Dyer and Hilliam set out on their epic mission to the front line.

At the bottom of the slope we crossed the Strombeck. Here was the front line in April, '15, and here the 5th and 8th Battalions remained in their trenches to the end. Just beyond is Source Farm, where in Oct., '17, Lt. Colonel Pearkes, V.C., cut off and well-nigh surrounded refused to withdraw. Further on the ground rises to Bellevue Spur. Here Lt. Colonel Foster leading forward two companies of the 52nd Battalion pushed the advance through. To the right of the road the Princess Pats attacked, and Talbot Papineau, beau ideal of a gallant soldier, fell in the moment of victory. Just in front MacLauchlin cheered on the 2nd Battalion in its thrust on Musselmark.

The Canadian battle site is where Crest Farm stood, when taken by the 72nd Canadian Highlanders. This height, well chosen for a

memorial, dominates the landscape. I would ask the humble pilgrim to the sacred soil to pause here for a brief space.

Look. Down there is a hollow; willows scattered along its banks denote a running stream. That is the little Strombeck. The hedge rows and the trees are bursting into leaf. The spring is early and the land, green and glistening in the sunshine seems strangely at rest. What does it mean? Why are the fields deserted and the roads so still? Two long lines of upturned earth confront one another. These and some strands of wire straggle across the landscape. A shell bursting over there on the ridge; the crack of a rifle, otherwise peace..... There low over the field hovers an aeroplane. Four red lights dropping earthwards seem to be a signal, for suddenly the restful scene is rent with a wave of fury. Amid the road of guns, the crash of bursting shell, is heard the crackling roll of rifle fire and the rattle of machine guns. Down there on the Strombeck the shells are falling thick. Down there and upwards towards the ridge something faint, mysterious is creeping like a green veil. And over there men, gripped suddenly by the throat by this green mystery, are dying, with blue and swollen faces. still the sun shines and the mist creeps on.

Look again, Oh Pilgrim! All the houses, fields and hedges are swept away in a brown and muddy sea. Every landmark is gone. whole land is pitted by a million shell holes, as by some dread disorder. A few sightless stumps of trees; a stream dammed up in now a lake; and of the comfortable farms, not a brick, not a blade of grass remains. Across the miles of mud stretches a single plank road. This is the centre of a sustained activity. Here a continuous stream of traffic carries the means of life and death to the men in the sea of mud, and here the shells are falling. Out there amid the shell holes horses and mules each with a load of shells, carry food for the hungry guns. Six eighteen pounder shells, sure a light enough load, but not in that waste of mud. Horses are dying everywhere. Out there the stolid enduring infantry flounder forward, defiant, undismayed. It seems impossible to ask troops to go forward, unreasonable to expect them to obey. Out there the wounded stagger homewards. Six bearers

to a stretcher and over an hour to move a mile. Wet, weary, mud to the eyebrows. Never was such soul-destroying fatigue. Never such indomitable stretcher-bearing. Up these twin ridges that stretch on either hand the Canadian divisions are slowly, surely struggling to their objectives, with Passchendaele the prize. Never was more remorseless fight, never a more relentless clutch on any town. For this we have waited for thirty months. Surely it is the most wonderful comeback in the history of war.

What was the price? What did we pay? Over there they lie. Rows of white stones amid the scarlet poppies of Flanders. In serried ranks they wait. Twelve thousand at Tyne Cot. A division on parade, resting after the great game in which the stakes were death. A quarter of a million all around, in Belgium alone. What a wealth of high hope and ardent youth! And upon that soil dyed purple with an imperial stain, the maple leaves are thickly strewn. Each grave a little piece of Canada. The leaves are fallen but the flowers will never fade; dead friends and living memories.

And as I looked I thought of the Canadian Corps singing through Dury in the middle of the night, as they marched to play their part in Ludendorff's Black Day.

Hail! Hail! the Gang's all here, What the Hell do we care?

Its the end of an old song now. A song that ended in many a white tombstone and many a distant grave. But the spirit is still there, the spirit of the Old Corps that never knew defeat.

Once again they will be gathered together as on the day of battle, once again they will assemble at the sound of the trumpet, and once again they will answer to their names as in the days of old, and the gang will all be there.

And so amid a blaze of memories, I walked into Passchendaele, thoughtfully, gratefully, and I hope humbly. Passchendaele the unattainable, the prize of half a year's fighting, the hardest the world has seen. I walked into Passchendaele with the Corps Commander, the victor in the famous fight. Romance was not dead. It had come home to roost, with a garland of bay leaves about its brow.

MEMENTOES OF LAVOISIER

An interesting account of a visit paid by Dr. Graham Lusk of New York to Madame DesChazelles at the Château de la Canière a few miles from Vichy, appears in the *Journal of the American Medical Association* (October 17, 1925).

Monsieur DesChazelles was the great grand nephew of Lavoisier and died recently in Paris at an age well over ninety years. Lusk describes some of the many mementoes of Lavoisier seen by him in this very beautiful château. Almost immediately after the execution of Lavoisier at the time of the French Revolution, his family recovered possession of his apparatus, his library, and his original manuscripts. As an indication of the tragedy which occurred at that time when Lavoisier was seized, Graham Lusk was shown the broken lock of a beautiful morocco portfolio, which had been pried open by his accusers in their search for evidence against him. It is stated that the great chemist Dumas read over some of the manuscripts; it may be that in a pile of papers he was shown is a description of the method by which Lavoisier made the first measurements of basal metabolism on man, and noted that this metabolism was increased by food, work, and cold. No physiologist has ever read them, and Lavoisier was executed before he was able to do anything with them. When Graham Lusk was a student in Munich, Carl Voit told him that he understood the original respiration apparatus was in a cellar in Paris and that should he ever visit Paris he would very much like to investigate the matter, and added that Lavoisier's technique was entirely unknown. Shortly after this, Grimaux published his work on Lavoisier which contained reproductions of two drawings by Madame

Lavoisier showing some of the technique involved. These drawings picture Lavoisier himself actively experimenting, and Madame Lavoisier seated at a table taking notes. The surprise of the visit was the discovery of the original face mask used on the subject Seguin. This mask was of copper and was fitted with two glass eyes similar to those used in diving costumes. Graham Lusk speaks of reverently examining each bit of apparatus; the glass globes, and the tall cylinders with petcocks at one end. An oblong box shown in the pictures could not be found. Other interesting objects that he saw were a simple laboratory chair with an elongated arm, made perhaps for convenience in taking the pulse rate, and a watch which not only registered the time by the twelve-hour half day but also simultaneously showed the time according to a new ten hour day. The Lavoisier library contained presentation copies of books from La Place and many other treasures. There were three small portraits of Count Romford, (Benjamin Thompson), for many years a great friend of Lavoisier. A bust of Lavoisier by Houdin, and a large rosewood desk used by Lavoisier were in the main hall of the château. The picture of Lavoisier and his wife, painted by David, the only portrait of him in existence, is now in an American home. A kindly Frenchman wrote Dr. Lusk that he was glad to hear it was in the hands of "his good countryman, Mr. J. Rockefeller, so devoted to medical researches." To those who know what Mr. Rockefeller has done for the restoration of the cathedral at Rheims, and of the Palace of Versailles, for the benefit of man now, and in centuries to come, it will be gratifying to know that this great picture is held in trust by him.

Basal Cerebral Hemorrhage. Maurice Packard and Edwin G. Zabriskie, New York, report four cases of basal cerebral hemorrhage, in which the diagnosis was made before death. It is stated that the presence of persistent blood in the spinal fluid, hemolyzed red blood cells and variability of color from bright red to yellowish tinged, without clot or large amounts of albumin, should always arouse the suspicion of cerebral hemorrhage at the base. It is possible that hemorrhage into the ventricles from

eroded vessels of a tumor may confuse one in making a decision; but in the latter case the blood-tinged fluid appeared late in the course of the disease, whereas in the former it invariably appears early, persists throughout, and remains bright red as long as leakage occurs. If the flow of blood ceases or in some way becomes temporarily walled off, the color changes to yellow, or may eventually become entirely clear, only to become red again when the accession of fresh blood begins. Journal A.M.A., Nov. 21, 1925.

Abstracts from Current Literature

MEDICINE

The Effect of Ultraviolet Light Treatment on the Symptoms of Intestinal Tuberculosis.— Erickson, R. J., Am. Rev. Tuberc., 1925, Sept., xii, 15.

Dr. Erickson has analyzed a series of eightyone cases of intestinal tuberculosis complicating
pulmonary tuberculosis with regard to their
treatment by ultraviolet light. He limits himself to a discussion of the relief of symptoms.
What effect this has on the eventual arrest of
the disease he cannot yet say, but in several
cases it was known that the disappearance of
the symptoms for a year or more, was accompanied by a clearing of the abnormal intestinal
x-ray picture. In any case, it is often the distressing intestinal symptoms, which turn the tide
against the patient, and any method which will
control these symptoms will increase the chances
of recovery from the pulmonary disease.

The older idea was that intestinal tuberculosis was an almost fatal complication. This, Dr. Erickson thinks, was because nothing but the last stages were diagnosed. Now, however, proper x-ray study enables us to make an early diagnosis, and, if as it seems, we have in ultraviolet light a reliable means of controlling the symptoms we shall have to revise our ideas considerably.

The way in which the light acts in tuberculosis is not yet clear. It is known to have a profound effect on the calcium metabolism of the body, and it is suggested that its effect on tuberculosis is through this metabolism. The action is too prompt, however, to be regarded as curative in most cases. The results are therefore divided into two stages; a palliative one, as shown by symptomatic relief, and a curative one, which is shown in the x-ray picture considerably later, generally in about eighteen months in the most favourable type.

In this series, there was a favourable result from the use of the ultraviolet light in 85.2 per cent, as judged by entire relief or definite improvement in symptoms, and in 14.8 per cent there was no result or an unfavourable one. Of the sixty-nine cases that were favourably affected, 54 per cent were improved by the end

of the first month of treatment, 72 per cent by the end of the second month, and 90 per cent by the end of the third month. Thus, if favourable results are to be expected, improvement will probably begin within three months. This symptomatic improvement has persisted in 85 per cent of the sixty-nine cases for four months, in 50 per cent for a year or so, and in 12 per cent for from three to four years. In all the favourably affected cases, the symptomatic result occurred in the same period of time, regardless of whether the symptoms had existed for a month or several months previously. Pain and nausea and vomiting seem to be most effectively relieved; diarrhœa is more persistent, and general digestive disturbances are still more so.

H. E. MACDERMOT

Glycæmia as a Guide in the Treatment of Diabetes Mellitus: The Practicability of Routine Examinations of Small, Effectively Preserved Specimens of Blood drawn by the Patient. Badler, Walter H.; Starr, Paul, and Tulsey, Gertrude, Arch. Int. Med., Oct., 1925, vol. xxxvi, 579.

The necessity of maintaining normal blood sugar levels in diabetes mellitus has been urged by a few writers, notably Campbell and Macleod, of Toronto, and McCaskey, of New York. Other clinicians ignore hyperglycemia as long as the patient remains aglycosuric. Many consider frequent blood sugar determinations inconvenient and impracticable because of the additional expense and discomfort to the patient. The introduction of more accurate methods and the use of preservatives have largely overcome these objections.

The method described in detail is an adaptation of the Folin-Wu method, described by Randles and Grigg, with the sodium fluorid and thymol preservative recommended by Sander. The preservative and anticoagulant was sodium fluoride and thymol finely powdered and passed several times through a 100-mesh sieve in the proportion of 10.2; 5 mg. per sample was used. The effect of incubation is shown to be very slight and well within the limits of error of the micro method. In addition to the preservative series in the incubator, micro samples were

mailed to various parts of the country and back again to the laboratory. The differences were well within the limits of error.

For collection and preservation, small, wide-mouthed vials were used. Patients pricked their own fingers. It was found that even the most nervous patients willingly and easily learned to collect these samples and that the precedure had a valuable disciplinary effect. The accuracy of readings is not affected by the utilization of finger instead of venous blood since it has been shown that in the fasting state, the sugar content of capillary blood, which is virtually arterial, is practically the same as that of venous blood.

Lillian A. Chase

Nutritional Changes in Exophthalmic Goitre:
The Effect of Lugol's Solution. Sturgis,
C. C. and Greene, J. A., Arch. Int. Med., Oct.,
1925, xxxvi, 51.

The body weight indicates the balance between the energy supplied to the body in the form of food and the total energy expended as heat and muscular movements. Every normal individual expends a definite amount of energy, depending on sex, age, height, weight, food intake, and muscular activity. To provide for this an equal number of calories in the form of food must be ingested, or the individual will consume his own tissues and a loss in body weight will follow. If a quantity of food in excess of the energy requirements is eaten, the surplus calories will be stored in the body, chiefly in the form of fat and carbohydrate, and there will be a gain in body weight. In a normal person, a diet that is inadequate in calories first results in a loss of body weight. Following this, there is a drop in the basal metabolism or energy requirements. Joslin has calculated that in normal persons for each 10 per cent loss in weight there is a percentage decrease in the metabolism of 1.8.

In exophthalmic goitre and in diabetes mellitus similar degrees of undernutrition are frequently observed. Joslin found in a study of 200 patients with diabetes that the average weight loss was 26.4 lbs. In the group of patients with exophthalmic goitre who lost weight (86.5 per cent of the group), the average loss was 26.3 lbs. The respiratory quotient of the severe cases of diabetes averaged 0.73, which indicated that very small amounts of carbohydrates were being used. The respiratory quo-

tient of this group of exophthalmic goitre patients averaged approximately the same, 0.75. In diabetes there is an inability to use carbohydrates. In exophthalmic goitre there is no inability to use carbohydrate, but the glycogen stores are greatly depleted.

A majority of these patients show striking undernutrition when they appear for treatment. Such a patient's condition is somewhat comparable to that of a subject who has undergone a complete fast for twenty-nine days. This patient comes to hospital and in a variable period of time undergoes a major operation on the thyroid gland.

Thirty-six cases were studied as to post-operative loss of weight, and it was found that all but one lost weight after operation, average loss, 3.0 per cent variation in weight.

Among factors which may have been responsible for fluctuations of weight were: the level of basal metabolism; the extent of the post-operative febrile reaction; the inability of the patient to ingest food; the type of anæsthetic; post-operative acidosis and changes in the water balance of the body. There was no indication of loss in weight due to accumulation, or loss of cedema. There was no evidence that any particular anæsthetic affected weight. A severe acidosis was not encountered. The inability to take food is important.

A table is given showing twenty-eight cases of exophthalmic goitre, who had been treated with Lugol's solution from ten to fifteen days before operation. Basal metabolism dropped to plus 21 in contrast with thirty-six untreated cases, whose basal metabolism before operation was plus 39. In the untreated group five weighed more on the tenth postoperative day than before operation. Average loss of weight of treated cases, 2 per cent; of untreated cases, 5.2 per cent.

From this work these suggestions are deduced. If there has been small loss of weight, rest in hospital for ten days or two weeks, is sufficient. Lugol's solution should be administered after third or fourth day. Basal metabolism should be determined daily and when at lowest level thyroidectomy done. As Lugol's solution has come into use, ligations have become eliminated.

Treatment advised for undernourished cases is rest in bed, four or five weeks, on a diet 75-100 per cent greater than the basal metabolism.

Chart caloric intake. Do not begin Lugol's solution till date of operation is known, unless condition demands immediate attention. When the patient has rested several weeks, taking as much food as possible, and has gained in weight give Lugol's solution for about twelve days before operation. Lugol's solution should be continued on the day of operation, by rectum, if necessary and for several weeks following operation.

LILLIAN A. CHASE

A Consideration of the Clinical Value of Ephedrin. Miller, T. G., Am. J. M. Sc., Phila., August, 1925.

Dr. Miller describes ephedrin as the active principle of a Chinese drug which has been used in that country for five thousand years. Its action is very much the same as that of epinephrin, with two important differences; first, it can be given by mouth as well as hypodermically, second, its effect is more prolonged.

For these reasons it seems logical to hope that ephedrin may fulfil the promises made for epinephrin but so far not fulfilled by that drug. This new edition to our pharmacology affects blood pressure, intestinal movement, blood vessels, heart, the uterus and the bronchial muscles. The duration of its effect varies from fifteen minutes to some hours. Its toxicity is low, many times the medicinal dose being required to cause death. Lastly, repeated or continued dosage produces neither tolerance for the drug nor injury to the system.

The author gives a table of observations made on eighty-four patients. Outside minor symptoms, no really harmful effects were caused.

- (1) Systolic pressure was increased in almost all. The peak of the rise was reached in an hour if given hypodermically and in two hours if administered orally. This elevation lasted as long as six hours in some instances.
- (2) Pulse rate decreased with rise of blood pressure.
- (3) By stimulation of cardiac ganglia a greater contraction and a more forceful apex beat was produced. In some cases murmurs developed but never of a vital character.
- (4) In the urinary system, some transient albuminuria was noticed, but no definite conclusion could be drawn as regards urinary output. The author gives some results of experiments on several cases which rather indicate the line

of future research than lay down any principles of treatment. (a) In two cases of Addison's disease ephedrin helped the general condition beneficially and caused a rise of blood pressure. Large doses seemed to cause some reaction, and smaller dosage was more useful. (b) Seven cases of asthma responded to the drug both as an emergency measure and for treatment. (c) In urticaria it seems more useful than epinephrin because it can be given orally. (d) In certain conditions of a very grave nature—shock, heart failure, toxemia—nothing positive can be stated. (e) For exsanguinating the nasal mucous membrane for operative work ephedrin does as well and better than epinephrin.

P. M. MACDONNELL

Iodine Hyperthyroidism. Jackson, A. S., Am. Jour. Med. Sc., Phila., August, 1925.

The author draws attention to the increase in the number of iodine hyperthyroidism cases since iodine has been used as a prophylactic, and mentions thirty-eight cases observed by himself. In view of having seen two deaths due to this condition, and several other patients very sick indeed, he thinks everybody should realize the dangers of a widespread administration of the drug.

First of all, there is a great difference in individual susceptibility; a small amount producing toxicity in certain people. The administration by drinking water and by iodized salt is discussed. Against the first method is the waste and for this reason the great cost of supplying each individual with a very small amount. It is difficult to say whether hyperthyroidism can be produced by this system.

Under twenty years of age iodine is practically harmless if given for colloid goitre. With adenomatous cases great care is necessary. After twenty-one years iodine is useless except in exophthalmic goitre and is dangerous in adenomata.

The author gives the differential diagnosis between adenomatous and exophthalmic goitre, and then describes the syndrome of iodine hyperthyroidism, which may happen at any age:—Tremors, loss of weight, tachycardia, restlessness, insomnia, onset rapid like that of exophthalmic goitre, as are many of the other symptoms. There is not, however, the ravenous appetite. The myocardium will not respond to

digitalis. Metabolic rate is more like toxic adenoma, around a + 30.

As regards treatment, thyroidectomy seems to be the wisest procedure, although there is some risk. Early in the case is of course a much better time to operate.

Pathologically, the thyroid is not markedly hyperplastic as in exophthalmic goitre but is more like the type seen in adenoma. The gland is somewhat hyperplastic and the colloid in excess. There is no change special to iodine hyperthyroidism. The explanation seems to be physiological rather than pathological. There may be a disturbance in iodine metabolism: the conditions occur not in colloid but in adenomatous goitre, which is a compensatory hypertrophy, an effort to supply more thyroxin. By giving iodine, the tendency to form adenomatous tissue may be checked, but if too much is given it is not changed to thyroxin but remains free in the circulation, and does harm. P. M. MACDONNELL

SURGERY

Benign Tumours of the Stomach. Eliason, E. L. and Wright, V. W. M., Surg. Gyn. and Obst., Oct., 1925.

The benign tumours of the stomach comprise adenomata, papillomata, myomata, fibromata, cysts, angiomata, lipomata, osteomata, and myxomata. At the present time upwards of 1,000 cases have been reported. The etiology does not appear to differ from that of similar tumours elsewhere in the body. There is commonly an associated gastritis. The peristaltic action of the stomach has an influence on the shape of the tumour.

The authors claim that there is no pathognomonic sign, but that there are syndromes which occur with four distinct types. The polyposis type gives indefinite symptoms of increasing severity over a long period of time. There is indefinite pain without reference to meals, except that it is relieved by eating small amounts frequently. There is gradual loss of weight and strength.

The angiomata type gives hæmatemesis and melæna, with loss of weight, pain, a temporary recovery, and a repetition of the symptoms. The myomata type gives sometimes a palpable tumour. The patient feels heavy lumps which change position. If situated within the stomach they may block the pylorus.

The ball-valve type of tumour is the one internally situated and gives repeated paroxysmal, spasmodic pain with prostration, anorexia, hæmorrhage and loss of weight. If the tumour is not released from the pylorus, an intussusception of the stomach may occur into the duodenum with fatal results.

Laboratory analyses are of little value but the x-ray is very valuable. The tumours produce a filling defect which is circumscribed and punched out in appearance. This filling defect is usually in the gastric wall, leaving the lesser curve free and pliable. The rugæ are normal. They do not disturb peristalsis and do not produce a niche or spasm. They are rarely palpable.

The myomata are the common type. They may be single or multiple, and may become malignant. The most common type is papilloma, which should not be confused with polypus. They are commonly multiple.

The term "polypi" is misleading and should be dropped from the description of benign lesions. Every polypus belongs to one of many known pathological tumours.

Adenomata are round or lobulated projections into the stomach and may be single or multiple, sessile, or pedunculated. They are subject to cystic and carcinomatous degeneration. They vary in size from a pea to a fœtal head.

There are seven varieties of cysts reported. The subserous lipoma is twice as common as the submucous. They are solitary and on the anterior wall in the central portion. Fibromata form five per cent. of benign stomach tumours.

R. V. B. SHIER

Chronic Pancreatitis. Hinton J. William, Surg., Gyn. and Obst., Oct., 1925.

Acute exacerbations of abdominal pain following cholecystectomy for cholecystitis and cholelithiasis is not uncommon. A number of patients have similar attacks prior to operation, at which no stones were found in the gall-bladder. If the patient has had a cholecystectomy, the usual diagnosis is stone missed at operation, now lodged in the common duct. The negative operative findings are best explained by recurrent attacks of pancreatitis, the result of pre-existing cholecystitis. The lymphatics of the body and tail come from the left abdomen, while those of the head drain the gall-bladder and biliary tract

as well as the ileo-cæcal region. Chronic pancreatitis more frequently affects the head and is a lymphangitis, the interstitial tissue being chiefly involved.

The symptoms of chronic pancreatitis are pain, vomiting, and jaundice of varying degree. The pain is severe and constant, and may be either to the left or the right of the midline and referred to the back. Whatever its distribution at the onset it usually localizes in the epigastrium in forty-eight hours. Nausea is not common, but vomiting is, and occurs frequently, as many as forty to fifty times in the first twenty-four hours, and leads to the diagnosis of high intestinal obstruction. Jaundice appears after the attack has persisted from forty-eight hours to seventy-two hours. Physical examination gives an indefinite tenderness, but lack of physical signs is an outstanding feature.

Surgery should not be resorted to too early, as a number of these cases recover completely after several attacks. Common duet drainage is disappointing in its effects according to the author.

R. V. B. SHIER

Blood Transfusion to Date. Herr, E. A., Surg., Gyn. and Obst., 1925, October, xli, 513.

This is a clear and concise review of the developments attending the practice of blood transfusion. The first allusion to transfusion seems to have been made in 1492, when Pope Innocent VIII. was given a "transfusion" by Jewish doctors, three boys being used as donors. All the donors died and the patient was not saved. It is doubtful, however, whether transfusion mentioned as early as this meant anything more than the giving of blood as a beverage, as the idea of the circulation of the blood was not proposed by Harvey until 1616.

He summarizes his conclusions as follows:—Whole blood is undoubtedly the best for transfusion. He discusses the disadvantages of mixing it with citrate solutions; this destroys the blood platelets, which play an important part in coagulation; it develops certain anti-complementary properties in the plasma, and increases the fragility of the crythrocytes. On the other hand, the citrate method has its value under certain conditions and should not be entirely abandoned. The Unger method of administration he holds to be the method of choice.

There is no change of blood groups during

life; the agglutinating properties cannot appear in the blood of the offspring without having been present in the blood of the parents. In his experience it has been found possible to safely use donors whose serum showed agglutination of the recipient's corpuscles. Transfusion should be used less as a last resort and more as an early therapeutic measure, and in a greater variety of cases.

H. E. MacDermot

A Study of the Intramural Portion of Normal and Diseased Tubes with Reference to Sterility. Geist, S. H. and Goldberger, M. A., Surg., Gyn. and Obst., November, 1925.

This study was undertaken to determine the type of lesion that could cause an obstruction in the Fallopian tube, as well as the site of the obstruction. All tests were carried out on freshly extirpated organs. The tubes were tied, insufflated, and later injected with 20 per cent iodide solution, and an x-ray taken. In this way, it was shown that about 50 per cent of normal tubes take a convoluted course from the uterine ostium through the uterine wall, thus making the passage of spermatozoa or ova very difficult. Other tubes showed neoplastic lesions of the intramural portions-such as, small fibroid nodules or cornual polyps. In the diseased tubes, definite pathological lesions were found in the intramural portion; often ædema of the mucosa with infiltration of round cells, resulting in a thickening of the mucosa. Sometimes a proliferation of the glands of the uterine cornu, occluded the tube. Hence impregnation may be hindered by (1) the angulations and convolutions of a normal tube; (2) by inflammatory or neoplastic lesions of the intramural or neoplastic lesions of the intramural portion of the tube.

In the former class the Rubin's test may be negative due to a contracting uterine muscle, and at some future date when the muscle is relaxed, the gas may readily pass. Moreover a patient with a negative Rubin, may at laparotomy show patent fimbriated ends; so that the test done with the abdomen open, will be positive, due in part to relaxation and in part to straightening of the intramural course. A positive Rubin's test indicates that the tubes are patent for gas under pressure, but the spermatozoa may have difficulty in surmounting the obstacles of kinks and angles. Hence operative

interference undertaken to make patent the abdominal ostium may prove valueless owing to obstruction at the intramural part of the tube.

E. PERCIVAL

Further Studies in Puerperal Infection and Their Treatment. Polak, J. O., Am. J. Obs. and Gyn., Oct., 1925.

The author discusses the value of the intravenous administration of such drugs as mercurochrome, acriflavine, and gentian violet in cases of puerperal septicæmia. In order to be effective, such a chemical must either destroy the bacteria in the blood stream without impairing the function of the individual tissues, or it must increase the patient's resistance by supplying her with cellular elements which can react and destroy the bacteria. It is shown that these drugs do cause a temporary increase in the white cells, but this lasts only twenty-four hours. In dilutions strong enough to be bactericidal, the motility of the leucocytes is affected.

On the other hand, properly matched human blood supplies the necessary resistance against bacterial multiplication; it raises the blood pressure, stimulates the heart action and improves the well-being of the patient. Repeated transfusion of 200-300 c.c. of carefully typed and matched blood is considered the ideal method of treatment.

E. PERCIVAL

ANÆSTHESIA

Anæsthesia in Diabetes. Rabinowitch, I. M., Current Researches in Anæsthesia and Analgesia, Oct., 1925.

The general anæsthetics produce an alteration in the metabolism of carbohydrates and fats. This is manifested by hyperglycæmia and the presence of acetone, diacetic acid, etc. in the urine. Ether may not only prevent the conversion of glucose into glycogen and the storage of the latter in the liver, but may also interfere with the metabolism of the glycogen already stored there, with resulting hyperglycæmia. Ether may also produce acidosis. It may impair the efficiency of the kidneys so as to cause partial or complete suppression of urine. Acidosis if present would then become more marked. Damage to the kidney may also cause defective ammonia metabolism.

The fundamental disturbance in the metabolism of the diabetic is a lessening of the capa-

city of the organism to metabolize carbohydrates. The mechanism of oxidation, of storage, or of both may be involved. Carbohydrates in process of oxidation are necessary for the complete oxidation of fats. As a result of incomplete oxidation of fats, acetone, diacetic acid, and beta-oxybutyric acid are formed.

In a diabetic requiring a general anæsthetic the store of glycogen, already low, may be further reduced by restrictions in diet before and after operation, and the tendency to acidosis increased. Treatment should be directed towards obtaining a normal blood sugar before operation. A normal blood sugar may be an index of a normal state of carbohydrate metabolism at the time of the test, but is no index of the amount of sugar available for the future. Clinically, this may be judged approximately by the carbohydrate content of the diet, and the metabolic rate of the individual for a few days prior to anæsthesia. The milder the diabetes the more liberal is the carbohydrate allowance, and therefore the greater the storage.

A liberal carbohydrate store may be obtained either by diet alone, or by diet combined with the use of insulin. In case of emergency, administration of glucose combined with insulin may be necessary. If insulin is necessary, it should be given at such time before the anæsthetic that its beneficial action may be noted, before the harmful effect of the anæsthetic is produced.

W. B. HOWELL

Three Cases of Revival of the Heart after Syncope during Anæsthesia, one Permanent, the others Temporary, by the Intracardiac Injection of Adrenaline. Asteriadès, M., Lyon Chirurgical, Sept., and Oct., vtbe, p. Lyon Chirurgical, Sept. and Oct., 1925, p. 686.

Asteriadès sums up briefly our present knowledge of intracardiae injection for syncope occurring during anæsthesia. Permanent recovery does not occur if the heart has stopped for more than five minutes. He emphasizes the importance of not wasting time over artificial respiration if the heart is not beating.

Case 1.—A soldier, aged twenty-two, was given chloroform for an operation for inguinal hernia. At the beginning of the operation the heart suddenly stopped beating. Adrenalin was immediately injected into the fourth left inter-

space two finger breadths from the edge of the sternum. In thirty seconds the heart began to beat feebly and in two minutes energetically. Five minutes afterwards a spontaneous breath was taken and in ten minutes the patient was breathing naturally. Twenty-five minutes after the syncope occurred the operation was resumed under chloroform. The pulse was rapid (110-100) for four days afterwards. Recovery of consciousness was slow and there was some vertigo for three days. Afterwards, recovery was uninterrupted.

Case 2.—A child of five was operated on for osteosarcoma of the lower jaw. Pulse and respiration suddenly stopped at the end of the operation. Eight minutes later a quarter of a milligramme of adrenaline was injected into the heart. Feeble movements occurred during two minutes and then stopped. A second injection had no more effect than to elicit a few feeble beats.

Case 3.—A man aged twenty-eight was operated on under chloroform for tuberculous peritonitis. When the operation was nearly finished, while the patient was showing signs of very light anæsthesia, syncope occurred. Massage of the heart through the diaphragm was done with no result. After ten minutes adrenaline was injected into the heart which in fifty seconds began to beat. It stopped again after three minutes.

W. B. HOWELL

DERMATOLOGY

Chemical Analysis of the Sweat. Barney, Robert E., Jour. A. M. A., Oct. 31, 1925.

Investigation of normal and pathological sweat is here described. Normal healthy young adults on a well balanced diet were examined two hours after lunch and after a cleansing bath. They were placed between rubber sheets,

warmed with hot water bottles, one-fifth of a grain of pilocarpin was injected and a large quantity of fluid taken. An average of 500 c.c. of sweat was collected in an hour and a half. The filtrate of this was examined for total solids, urea nitrogen and nonprotein nitrogen.

It was found that the injection of pilocarpin had no effect on the sweat content. So-called senile eczema received special attention in order to establish a possible relationship between faulty sweat excretion, and the general breakdown, especially of the cardio-renal system. A diminution of the output of nitrogen elements was found in this malady and may have some bearing on the etiology of the condition. Six cases of psoriasis investigated had a normal sweat content. The author pleads for an investigation of the salt output in sweat to determine whether this, with the nitrogenous elements, bears on the cause of senile eczema.

C. B. BOURNE

Sticking-Plaster Dermatitis. Siemens, H. W., Munich Med. Weekly, August 7, 1925.

That skin eruptions follow the use of sticking plaster has long been known. Experiments are described which suggest that the gum 'dammar'' is the cause. It is derived from one of the coniferæ and is an ingredient of many adhesive plasters. It is estimated that one per cent of persons have an idiosynerasy for sticking plaster. Three susceptible individuals yielded a marked erythema when the gum was introduced into the upper arm by sacrification and one developed a severe bullous dermatitis, lasting a fortnight, where dammar adhesive plaster was applied. Eczematous persons were not considered more liable to develop this dermatitis than others. The nature of the idiosyncrasy is C. R. BOURNE still unexplained.

Carbon Dioxid as an Aid in General Anesthesia. Personal experience has convinced John S. Lundy, Rochester, Minn., that carbon dioxid in moderate concentration assists in producing anesthesia, rendering the anesthetic apparently safer and easier to administer. Carbon dioxid should be used in such concentrations as will produce optimal results, and these vary with the individual and the type and stage of the

operation. Too much earbon dioxid is worse than none, and care should be exercised to prevent more than 5 per cent. being used. The results thus far in a series of 1,350 cases in the Mayo Clinic are satisfactory enough to warrant further investigation by others in the use of carbon dioxid during the induction and maintenance and at the termination of ordinary general anesthesia. Journal A.M.A., Dec. 19, 1925.

Medical Societies

OBSCURE PYREXIA IN CHILDHOOD

At a meeting of the Medical Society of London, Dr. Robert Hutchison opened a discussion on the causes of obscure pyrexia in childhood. The speaker stated that he proposed to classify cases of obscure pyrexia in childhood into three main groups; cases of acute fever lasting more than a week; cases of fever recurring in bouts; and cases of slight but prolonged fever continuing over a period, often, of years. In cases falling into the first group, the child was acutely ill with fever lasting for a week or so, without obvious physical signs. Such a case was too often labelled influenza. In his experience, influenza excepting during an epidemic, was rare in children, and if no complications occurred the fever in such cases did not last a week. In this group the enteric infections should be thought of first. In many cases in children classical signs such as the enlarged spleen, the rash and the diarrhoea were absent, but a blood culture or agglutination reactions will quickly clear up the diagnosis. An occasional cause in this group was an overlooked pneumonia, undetected because deep seated, or because it was at the extreme apex of the lung. In such cases the increased respiration and the occurrence of the inverted type of breathing should suggest this disease. Another important cause of pyrexia without physical signs was infection with the bacillus coli group, and especially pyelitis. Careful microscopic examination of the urine will afford evidence of this condition. In the early stage the urine may appear normal to the naked eye. A high, swinging temperature, a reluctance to being handled, and the microscopic discovery of pus cells and bacilli in the urine make clear the diagnosis. The therapeutic test of administering alkalies may also be very valuable. Cases of so-called medical septicæmia where the source of infection is not discoverable are very rare in children. Of the more localized troubles producing acute fever, Dr. Hutchison mentioned acute otitis media; especially those cases in which there was little complaint of earache and where the drum membrane is difficult to be seen. In a few instances, Dr. Hutchison felt certain that teeth was a definite cause of fever. Among the rarer causes Dr. Hutchison mentioned acute leukæmia, but in this disease the anæmia, the presence of enlarged glands and spleen, and the blood count, soon enabled the diagnosis to be made. Lastly, acute general tuberculous infection may give rise to fever, long before any definite physical signs could be discovered. In this disease, however, the rapid pulse and the presence of some cyanosis and, occasionally, tubercles in the choroid, may lead us to a diagnosis. In the second group of cases with recurrent bouts of fever, some alimentary disturbance may be a cause. Eustace Smith many years ago attributed these cases to a defective action in the liver. They often resemble cases of cyclical vomiting. In some cases vomiting and pyrexia alternated. Another cause of a recurrent type was a latent source of sepsis, especially in the tonsils. In such cases the tonsils could almost always be seen enlarged, and presenting foci of inflammation. Chronic bacillus coli, especially in older children and in girls, was a not uncommon cause of irregular and persistent temperature; the urine might appear to be normal between the attacks. Tuberculosis had also to be considered in this group.

The third group of prolonged slight fever, usually at night, and lasting for months and even years, was also frequently due to a chronic infection of the tonsils. Other cases might be due to a mucous colitis. Latent rheumatism was very rare.

Dr. Hutchison was followed by Dr. Wilfred Pearson who agreed as to the importance of pyelitis and oral infection. In the alimentary group of cases he pointed out that in infants and quite young children insufficient fluid, with the ingestion of excess of sodium chloride and of certain proteins may give rise to pyrexia. Dr. Pearson insisted on the fact that in many children up to the age of ten years the normal temperature ir the morning was ninety-nine degrees and in the evening 99.5.

At the close of the meeting Dr. Hutchison replied briefly to several points raised. Some of the persistent slight febrile cases were best treated by ignoring them. He thought that undoubtedly in some instances a connection existed between repeated sore throats and bad drains, although such a connection was perhaps difficult to understand.

Miscellaneous

JUDGMENT RENDERED IN THE CASE OF DR. C. W. HUNT

APPEALING AGAINST THE JUDGMENT OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF THE PROVINCE OF SASKATCHEWAN BY HIS HONOUR JUDGE MACKENZIE IN THE KING'S BENCH COURT

On the twenty-second of January, 1925, the Appellant, who was then a member of the College of Physicians and Surgeons of the Province of Saskatchewan, appeared before the Discipline Committee of the Medical Council of the said College in response to a notice served upon him at the instance of the said Committee upon the application of two medical practitioners of the said Province, to anwer certain charges of which the following only are in question, namely:

"That you did, during the year 1924, fail to furnish the Registrar of the College of Physicians and Surgeons of the Department of Public Health for the Province of Saskatchewan, with particulars as to the preparation and contents of a serum alleged to be a cure for tuberculosis, or an outline of the treatment thereof, or to satisfy the said Registrar or the said Department of Public Health that the said serum was cure as alleged a cure as alleged.

And further, that you did offer as a cure for tuberculosis a remedy as yet unproved, being thereby guilty of an offence within the meaning of Section 40 of the Medical Profession Act, being Chapter 135 of the Revised Statutes of Saskatchewan, 1920, as amended."

After hearing a considerable number of witnesses and considering the matter, the Discipline Committee on the eleventh of March, 1925, reported to the Council of the said College, as follows:—

"That the said C. W. Hunt did fail, during the year 1924, to furnish the Registrar of the College of Physicians and Surgeons and the Deputy Minister of Public Health for the Province of Saskatchewan with particulars as to the preparation and contents of a serum or remedy alleged to be a cure for tuberculosis, or an outline of the treatment thereof: or to satisfy the said Registrar or the said Deputy Minister of Public Health that the said Remedy was a cure, as alleged. And it finds further, that he did offer as a cure for tuberculosis a remedy as yet unproved by medical, scientific or health authorities.

(2) That the Committee find further that, largely on the evidence of C. W. Hunt himself, that he was using a remedy which he did not know himself, and using a remedy which he did not know himself, and that he accepted large sums for administering the remedy, and in one case did not administer the remedy, and that he used in his work in connection with the alleged remedy as an assistant a veterinary surgeon, unqualified as a medical doctor, and not a member of the College of Physicians and Surgeons, and that the general method of administering the alleged remedy to patients was not such as should be followed by a member of the College."

The Discipline Committee further found by its report that the Appellant had been guilty of improper and unprofessional conduct within the meaning of Section 40 of the said Act, as amended, by virtue of its findings of fact as aforesaid. The Committee, therefore, recommended that the Registrar erase the Appellant's name from the Registrar of the said College.

The said report was adopted by the said Medical Council on the same date, and the Appellant's name was in consequence erased from the said register, pursuant to the power contained in Section 41 of the said Act, as

amended, so that he has since been disqualified from practicing his profession in this Province.

From the above decision the Appellant now appeals to a Judge of this Court, under Section 52 of the said Act.
One of his grounds of appeal is that Section 40 of the said Act, as amended, under which the Discipline Committee and Medical Council respectively purported to act, as aforesaid, is ultra vires of the Legislature of this Province, in that he has not only created the Medical Council a Court as it has power to do under Section 92, Sub-Sec. 14, of the British North America Act, but that it has also appointed the members of the Discipline Committee under the committee the co mittee judges thereof, contrary to Section 96 of the British North America Act, which provides that:

"The Governor General shall appoint the judges of the Superior, District and County Courts in each Province except those of the Courts of Probate in Nova Scotia and New Brunswick."

As the decision of this constitutional question must affect the whole foundation of the case, it seems to me advisable to consider it first.

Section 40 of the Medical Profession Act was extensively amended by Section 3, Chapter 59 of the Statutes of Saskatchewan, 1921-1922, so that it now reads in the material part as follows:—

"40, (1) The Discipline Committee shall on a written order of the Council or upon application of any two duly qualified medical practitioners, and may of its own motion investigate the facts regarding any member of the College who......(d) is reported own motion investigate the facts regarding any member of the College who.....(d) is reported to be guilty of, or has been charged with unbecoming, improper or criminal conduct, whether professional or otherwise (2) without in any way restricting the generality of Clause (d) Sub-Sec. (1). Every member shall be deemed guilty of unbecoming or improper conduct who (d) employe in conpector with his conduct who, (g) employs in connection with his medical practice an assistant who is not registered under this Act, or permits any unregistered person to attend or treat patients, (h) does or fails to do any act or thing if the Discipline Committee deems such action or failure to be unprofessional or discreditable." action or failure to be unprofessional or discreditable.

It is true, as the Appellant submits, that such an investigation or inquiry as is provided by the above enactment has been held, properly, I think, to be a judicial one: (Re Cherniak and the College of Physicians and Surgeons of Ontario, 1920, 51, D.L.R., 533) and its function is for the determination of facts upon which the civil rights of the Appellant as a Physician may depend. (Re Stinson and the College of Physicians and Surgeons of Ontario, 1910, 22 O.L.R. 634). It does not follow, however, that the Council when holding such an investigation is a Court. On the contrary, it is stated in Halsbury, Vol. 9, p. 9:—

"Many hodges are not Courts, although they have

"Many bodies are not Courts, although they have to decide questions, and in so doing have to act judicially in the sense that the proceedings must be conducted with fairness and impartiality, such as assessment committees, Board of Guardians, the Benchers of the Inns of Court, when considering the conduct of one of their members, or the General Medical Council when considering questions affecting the position of a medical man.

This statement is extracted from the judgment of Lord Justice Fry, in Royal Aquarium v Parkinson, 1892, L.R. 1 Q.B. 447, when considering the question of the immunity of such bodies from liability for defamation. It has, however, since been thought applicable to such a question as the present, by Mr. Justice Cameron in Kowanko v J. H. Trembley Limited, 1920, 1 W.W.R. 798 See also in re Smith, 1925, 1 W.W.R. 1065-1066.

Another reason suggests itself to me why the exercise of such powers as conferred upon the Council by the

above enactment does not necessarily make it a Court, that is to say, the College of Physicians and Surgeons is a corporation, and one of the powers usually incident to a corporation is that of controlling its own membership, even to the disfranchisement of its individual members. (Halsbury, Vol. 8, 324). The above enactment, therefore, (Halsbury, Vol. 8, 324). The above enactment, therefore, merely provides the College with a statutory means of exercising that power. The creation of a Court is not necessary for the purpose. I think, therefore, when acting under Section 40, as amended, the Council was not a Court, and that consequently Section 96 of the British North America Act is without application thereto. Hence, I hold that in enacting Section 40 the Legislature

was acting well within its powers.

During the argument, Counsel for the Appellant sought to adduce not a little support for his contentions from the decision of the Ontario Appellate Court in Re Crichton, (1906) 13, O.L.R. 271. Before this case can be resorted to as an authority here, it is to be observed that there is a notable difference between the Ontario enactment upon which it is based and the standard used in its application, and those in force here. Under the enactment there (Ontario Medical Act, R.S.O., 1897, Chapter 176), the question of the practitioner's culpability depended upon whether he had been guilty of "infamous or disgraceful conduct in a professional respect," and in determining this, the standard to be applied thereunder according to Chancellor Boyd. (at p. 282):

"is not what is 'infamous' or 'disgraceful' from a profession al point of view, or as regarded by a doctor, and as construed in the light of the written or unwritten ethics of the profession: it is whether his conduct in the practice of his profession has been infamous or disgraceful in the ordinary sense of the epithets and according to the common judgment of men.

On this view the learned Chancellor held that the terms "infamous" or "disgraceful" did not cover breaches of those "conventional rules well recognised though it may be not conforming to a written code," which obtained, inter alia, among the members of the medical profession.

It may be remarked in passing that in dealing with Dr. Cherniack's case, (supra) there was a difference of opinion between two of the members of the Ontario Appellate Division as to whether the above standard was Appellate Division as to whether the above standard was the correct one, while in the recent dental case of Re Davidson, and the Royal College of Dental Surgeons of Ontario, 1925, 3 D.L.R., 543, the Appellate Division accepted not that standard, but the one prescribed by the English Court of Appeal respecting similar legislature in Allinson v and The General Council of Medical Education and Registration, 1804, 108, 763, which is as follows: and Registration, 1894, 1 Q.B., 763, which is as follows:

"If it is shown that a medical man in the pursuit of his profession has done something which would be reasonably regarded as disgraceful or dishonourable by his professional brethren of good repute and competency, then it is open to the general medical Council to say that he has been guilty of infamous conduct in a professional respect

In Saskatchewan, however, the Legislature, by the enactment of Section 40 above, as amended, has extended the responsibility of the members of the College of Physi-cians to the Medical Council, beyond what is contained in the words "infamous or disgraceful," as used in the Ontario Statute, by making them answerable for "unbecoming or improper or criminal conduct." Those breaches of professional conduct, therefore, which in Dr. Crichton's case, were held to fall without the former words, must now, in my opinion, without doubt be held to be included in the latter. In that case attention was called to the difference existing between the powers of the Medical Council and those of the Benchers of the Law Society in this respect: our Legislature, in enacting Section 40 has gone far to remove that difference. It has also gone farther than legislative bodies elsewhere by providing in the same section a statutory standard to be applied in determining what is unbecoming or improper conduct. Thus, it not only specifies a number of instances of such conduct, but it concludes with the general provision

upon which the Medical Council has principally based its action in this case.

"Every member shall be deemed guilty of unbecoming or improper conduct who does or fails to do any act or thing if the Discipline Committee deems such action or failure to be unprofessional or discreditable."

In applying this provision, much must depend upon the interpretation placed upon the meaning of the word "deems": that is to say, is the power so conferred an arbitrary or judicial one? I do not think I can do better than accept in this respect the meaning placed upon the same word by Sir George Jessell, M.R., when considering its application to a case of a very similar nature, as follows

"I have to say a word as to the use of the word 'deem.' That word has more than one meaning: but one of those meanings is to adjudge or decide. In fact, the old word 'deemater' or 'dempster' was a name for judge. To 'deem' at one time meant to decide judicially. Consequently, taking that meaning, what they had to do was to 'deem' that the member's conduct was suspicious, and such as made him unworthy. That is, in fact, a decision not merely depending upon opinion, but depending on inquiry. No one could suppose it was to be left to the caprice of the members of the Committee to stigmatise as dishonourable or dishonest any member of the Society. off course, it was not. It was intended that they should be satisfied by something like reasonable evidence that his conduct was unworthy." Russell v Russell, 1880, L.R., 14, Ch. Div. 479, 13 Cyc. 756. Grant v Treadgold, 4 W.L.R. 181.

In deciding, therefore, whether a member is guilty or not under the above provision, I take it that the Medical Council must act as a Court should act in the exercise of a judicial discretion, that is to say, not according to private opinion, but on the principles of reason and justice, upon which, if their decision is to stand, it must be justifiable. Annual Practice, 1924, 1238; Craie's Law, 3rd edition, 240.

In view of the foregoing I am of the opinion that the

In view of the foregoing, I am of the opinion that the Appellant would be entitled to succeed if he could show, (1), that the proceedings taken before the Discipline Committee and concluding with its report were not fair and impartial; (2) that the findings of fact contained in the said report were not supported by the evidence; and (3) that the Discipline Committee's decision that the Appellant was guilty of unbecoming, improper, and unprofessional conduct is not justified by its findings of fact.

I shall, therefore, proceed to deal with those three considerations in reference to the various contentions put

forward by the Appellant.

As pertinent to the first consideration, is the Appellant's contention that the findings of fact contained in paragraph 2 of the Report were outside the charges paragraph 2 of the Report were outside the charges originally made against him, which he submits is unfair on the authority of Re Crichton (supra) Ch. 281. Here again, there is a notable distinction between that case and this. There the Appellant, in the notice served upon him, was called upon to answer one charge, and then after the inquiry had proceeded a long way on that charge, it became covertly directed to the consideration of another and altogether different and more serious charge, of which the Council ultimately found him charge, of which the Council ultimately found him guilty. The Appellant was thus misled and deprived of the opportunity to make his proper defence to the latter charge. The prejudice which he suffered is apparent on the face of the proceedings. In this case, however, there was no such deflection or substitution in the proceedings. The findings of which the Appellant complains were merely an amplification of the allegations made in the merely an amplification of the allegations made in the original charges. The facts upon which they were based were either elicited or confirmed from the Appellant himself upon his examination. He was not called upon by the Committee to testify, but took the stand in his own defence. He was represented by Counsel. No suggestion is made as to how he could have bettered his defence over if an allegation to submit such findings had been even if an allegation to submit such findings had been included in the original charge.

Attention may also here be called to the facts that from Section 49, of the Medical Profession Act it would not appear to have been necessary to embody in the notice served upon the Appellant a copy of the charges to be made against him, so long as it contained a statement of the subject matter of inquiry. Judged by the latter requirements the notice given the Appellant seems to have been sufficient to support the Committee's findings.

Neither in the above nor in other respects can I find that the Discipline Committee in its proceedings failed to

act fairly or impartially.

As to the second of the above considerations, I am satisfied after a careful examination of the evidence taken before the Discipline Committee, and of the exhibits referred to therein, that the findings of fact contained in the report are supported by the evidence.

As to the third consideration, the Appellant contends As to the third consideration, the Appellant contends that his failure to furnish the Registrar of the College and the Deputy Minister with particulars as to the preparation and contents of the remedy in question could not render him guilty of unprofessional conduct, because, so he alleges, there is nothing in law or under the Code of Ethics making it his duty to do so. It is to be admitted that the Statute Law and the Code of Ethics make no mention of such a duty. It is established, however, by the evidence of medical men of high standing in their profession who were called by the Respondent, that when a member of that profession discovers a remedy for disease in the course of his professional duty there is a conventional rule that he disclose it to his professional brethren generally, so that all may use it for the benefit of suffering humanity. Judicial recognition of such a duty was given by Chancellor Boyd in Re Crichton (supra) page 284, where he says:

"There is no doubt that this man has grievously "There is no doubt that this man has grievously offended against those conventional rules, well recognized, though it may be, not forming a written code, which obtain among the members of every learned and honourable profession: he has....kept to himself and for himself this apparently valuable remedy and has not made known the formula in order that its benefits may be shared by the profession and the public."

sion and the public.

After the Registrar of the College of Physicians and the Deputy Minister of Health requested the Appellant to furnish them with information regarding the remedy in question, it must have been apparent to him as it would to anyone else, that the former was representing the medical profession, and the latter the public of Saskatchewan, and when, as the correspondence shows, he studiously avoided compliance with their requests, it became evident that he was determined to act in breach

of his professional duty of disclosure.

Again the Appellant contends that the Discipline Committee's action in finding, as it did, that he offered a remedy which was unproved, was unwarranted, since there exists no standard by which the Committee could test the said remedy in order to declare it either proved or unproved. It seems to me, however, having regard to the various means of testing it indicated by the evidence to which it has never been subjected, that it might well be deemed unproved, whatever the standard might be. It is obvious that it has never been tested, as the report states, by medical, scientific or health authorities, since, according to the Appellant himself, the idea of using it on human beings for tuberculosis, originated between himself and his assistant, and they kept that idea to themselves. Moreover, it is manifest from the Appellant's own evidence that his proof of it has been exceedingly limited. Thus, he admits that he never had it analyzed: that he has taken no steps to have its effects either chemically or scientifically ascertained: that his use of it has been entirely empirical, and that his knowledge of it is based wholly upon his observations of its physiological action. Such a remedy, in my opinion, may be properly designated a nostrum, and as the Appellant It is obvious that it has never been tested, as the report physiological action. Such a remedy, in my opinion, may be properly designated a nostrum, and as the Appellant was admittedly using it secretly and for gain, he was transgressing one of the well recognized rules of medical ethics which declares it reprehensible for a physician to dispense a secret nostrum. (See Re Crichton Supra, page 285). The Canadian Medical Association Code of Ethics adopted by the Saskatchewan Medical Association, Chapter B., Article 1, paragraph). Here again, then, the Appellant committed a breach of his professional duty.

Among other contentions put forward by the Appellant's counsel for avoiding the Discipline Committee's report, he also submitted that the treatment was shown by a number of those who had undergone it to be beneficial, and that in administering it, the Appellant acted in good faith to improve the science of medicine and for the good faith to improve the science of medicine and for the public good. I fail to see the relevancy of these contentions to this case. The Discipline Committee has not found that the treatment was unbeneficial, or that the Appellant acted in bad faith it was unnecessary for them nor would I refer to these contentions either had they not been urged on the appeal. As it is, I will do no more than remark that it is clear from the evidence that the reasons remark that it is clear from the evidence that the reasons which moved the Appellant to pursue the unprofessional course which he did respecting the said remedy were not so much the altruistic ones set forth in his appeal, as those revealed by himself, namely, that he found himself growing old and in straitened pecuniary circumstances. Hence he thought to treat the remedy as something out of which he might make provision for his old age. For the which he might make provision for his old age. For the same reasons I am not impressed with his alleged explanation to the Regina Medical Association, or with his invitation to its members to visit his hospital to observe the effects of the treatment. The fair inference is that by such means he hoped to allay professional curiosity, and so to still further inquiry about the matter.

Another contention put forward by the Appellant was that he is entitled to the protection of Section 21, Sub-Section 2 (a) of the Canada Medical Act, R.S.C., 1906, Chapter 137, which provides that the name of a person shall not be erased from the Canadian Medical Register because of his adopting or refusing to adopt the practice of any particular theory of medicine. I fail to see how he can legally invoke this enactment upon this application, or even if he could, how his use of the remedy in question could properly be termed a theory of medicine.

Upon those findings which I have discussed, as well as upon its other findings taken in the light of the evidence adduced before it, I think that the Discipline Committee was quite justified in declaring the Appellant guilty of unbecoming, improper, and unprofessional conduct. The Appellant also takes objection to the Medical

The Appellant also takes objection to the Medical Council's action in adopting the Discipline Committee's report on the ground that it failed to investigate it before adopting it, as required by 41 (1) of the Medical Profession Act. It is true that the Council is required to investigate such a report before it takes action thereon, and that in Dr. Crichton's case, one of the reasons why such action was set aside, was because the Council had not done so. only record of the Council's action before me in this respect only record of the Council's action before me in this respect is an extract from the minutes of its meeting on the eleventh of March, stating that it adopted the Discipline Committee's report. This is apparently all that is required to be furnished under Section 53 of the Act on appeal, unless the Appellant himself requests more. In the absence of any evidence to the contrary, I must assume that the Council fulfilled all such requirements, as Chief Justice Armour did, in Dr. Washington's case, 23 O.L.R. 317, where he says:

"The Council, if they did their duty, and we are not to assume that they did not do it, read the report and the evidence taken by the Committee."

On the merits, therefore, I must dismiss the appeal.
As to the punishment meted out to the Appellant by
the Medical Council, I am not satisfied. The evidence shows that the Appellant is sixty-nine years of age; that he has been a practitioner for over forty years, of which he has spent thirty-five years in Saskatchewan; that he was medical health officer in and about Indian Head where he lives, for twelve years. It does not appear that he had ever before been charged with unprofessional conduct. To erase the name of such a man from the register for all time for his first recorded delinquency and involve him in professional extinction and deprivation of his accustomed means of livelihood, strikes me as too severe an exercise of the Council's powers. I think it would have been enough to suspend him. His name has already been off the register for almost eight months. I will, therefore, be prepared to make an Order for its restoration to the register after the first of January next, upon his filing an undertaking satisfactory to the reasonal le wishes of the Council as to his future conduct. If

any dispute should arise as to what is reasonable in this respect, I will decide it.

The Respondent may have an order against the

Appellant for the costs of this appeal.

DATED at Saskatoon this day of November, A.D. 1925.

The Post - Graduate Association's "Medical Tactics''.- During the last few weeks the medical profession of this country has been widely circularized by a somewhat imposingly named concern, the "Post-Graduate Association," at 104 Hills Road, Cambridge, England. The advertising booklet sent out by the "Post-Graduate Association' is a red-covered affair entitled "The Management of Patients." The P. G. A. has for sale two "courses," one on "Medical Tactics," and another on therapeutics. Either course alone is offered to American physicians for \$5.50, or both courses for \$10. Those who purchase the course on tactics must sign a contract not to show it to any one else. While we have not seen the complete course, the syllabus, in the booklet already referred to, is intriguing. The course, it seems, instructs the physician how to so influence patients that they will come back again. It gives suggestions as to the doctor's house, its position, the character of its door and door plate, how the waiting and consulting rooms should be furnished, what instruments should be displayed-for psychic effect-and what instruments should be kept out of sight. It appears from the syllabus that the businesslike doctor must make sixteen impressions on each patient in an ordinary case-sixteen-to-one, 1925 model-and the P. G. A. course tells him how to make them. The single case in which it is judicious for the doctor to laugh at the patient is described. This alone should be worth five dollars. From the syllabus one gets the impression that this course in tactics is similar in character and scope to the "course" of "lectures" given in American chiropractic factories on "How to Sell Chiropractic," except that in this instance it is applied to medicine instead of Palmerism. In order to lend an air of verisimilitude to an otherwise unconvincing narrative, the P. G. A. purports to quote "Press Opinions" of ancient vintage from some medical journals published in the British Isles. The leading opinion quoted is credited to the British Medical Journal of June 6, 1914. The quotations in this case are so staccato and so obviously separated from the context as to arouse suspicion. Reference to the British Medical Journal's original report shows that our British contemporary published a mildly ironical article that was not in any sense the favourable notice that the disjointed quotations lead one to suppose. Inquiry made in Great Britain brings the information that there is no Post-Graduate Association at Cambridge. The address given is that of the printing firm that got out the syllabus already referred to. So far as we can learn, the "Association" consists of a man (not a physician) and his wife who occupy a little office in the building of the printing establishment. It seems, too, that booklets similar to those circulated among American physicians have been distributed among British physicians, the only difference being that the Post-Graduate Association charges the Britishers six guineas (about \$30) for what it offers to the American for \$10. What do you make of that, Watson?—Jour. A. M. A., Dec. 12, 1925.

Excretion of Morphine into Stomach.-The commonly accepted view that important amounts of morphine are excreted into the stomach rests solely on the testimony of Alt, which is not supported by any evidence that Hatcher and Davis have been able to discover; on the contrary, a study of the literature shows that careful investigators have uniformly failed to substantiate Alt's contention. Hatcher and Davis have found that only traces of morphine are excreted into the stomach of the cat and dog after the subcutaneous, intramuscular of intravenous injection of amounts varying from 56 mg. (75 mg. of the sulphate) to 982 mg. (1,229 mg. of the sulphate). If gastric lavage is of value in the treatment of morphine poisoning in those animals, this value does not depend on the removal of morphine from the stomach. It is self-evident that the removal of even important amounts of morphine from the stomach could not cause immediate improvement, such as Alt reported .-Jour. Exp. Therapy, Aug., 1925.

Obituaries

DR. R. L. FRASER

Dr. R. L. Fraser died at his home in Victoria, B.C., on November 16, 1925, after but a few days' illness. He had continued to practise with his son, Dr. Alan Fraser, whom he had recently associated with himself in practice, until his final illness overtook him. The late Dr. Fraser was born in Kincardine, Ontario, sixty-five years ago. He graduated in 1891 at Jefferson Medical College. He came to Victoria in that year and established a practice, and during the past thirty-five years has served well the community and the profession. His passing has cast a gloom over all confrères and patients, an evidence of the high position his work has

earned for him, not only as a surgeon, but as a

good citizen. For several prior to 1900, Dr. Fraser acted both as the city and as the Dominion health officer in Victoria. was a member of the consultant staffs of both the Royal Jubilee and St. Joseph's Hospitals in Victoria, and proved a source of strength to both institutions; his opinions on all matters medical and otherwise were always much valued. For some years he acted as an elected member of the council of the Provincial College of Physicians and Surgeons of which body he was a past president, and for some years was also a member of the Dominion Medical Council. He was a past president of the Victoria Medical Society. He held a seat on the Board of Governors of the University of British Columbia and always took a keen interest in educational affairs. He is survived by his widow and a son, Dr. Alan Fraser, and one daughter, Mrs. Ray Castle, of Victoria. M. W. THOMAS

Dr. Frager was possessed of much solidarity of character, having for its foundation an inborn honesty of purpose, a sincerity of heart which hated sham, a noble desire to serve, a kindliness which made him a friend, and a humility which humbled us all.

The younger members of the Victoria profession have lost a good friend and kindly counsellor, whose surgical experience and diagnostic skill were always at their disposal and so willingly and generously given.

Dr. Fraser left much to us, but he has taken much with him, and this Society and the medical service of this community have suffered a real loss in his passing. The members of the Victoria Medi-

cal Society wish to convey to Mrs. Fraser and family their sincerest sympathy in this sad be-reavement and record their grief in the loss of a noble member of the profession.

Dr. Forrest Leeder, President-Elect of the Canadian Medical Association, has forwarded to us the following tribute to his life:

"I am afraid we none of us took Fraser quite seriously when he began to talk of slight anginal attacks, and possibly seeing him look so well and knowing what a temperate life he led made us hope he took too serious a view of his condition. Again the wish was father to the thought that he might be spared for many years to enjoy his out - of - town residence among his early recollections and with his family around him. Such was not to be the case, however, and in his death his friends and colleagues lose a very charming personality, re-freshing in these hustling days, by his calm serenity of outlook on matters professional and otherwise

his judgment matured by sound reflection, and freed, apparently, from any jealous thoughts of the success of others, a feeling so apt to arise among medical men brought in daily intercourse with a fickle public apt to run after new men and new fads, and all too ungrateful, financially and mentally, to their sometime advisers.

The old thought arises—how much clinical knowledge dies when a man like Fraser passes on. How grateful one should be if only he had left a record of unusual cases or unusual terminations of cases seen by him during his career. Still, it has been a privilege to us to have known him, nor will his place be easily filled in the hearts and minds of many."

FORPEST LEEDER



DR. R. L. FRASER

The following resolution of Condolence was passed by the Victoria Medical Society and sent to his family:—

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In the passing of Dr. R. L. Fraser, the Victoria Medical Profession has lost a stalwart whose memory will linger for a long generation, and whose influence will ever be felt in the life of the Victoria Medical Society and to a marked degree in the individual lives of those who knew him. The late Dr. Fraser served his profession on the councils of the Dominion and the province, and erected a record of unselfish endeavour which places his name forever on the honour roll in the hearts of those whom he served. Dr. Fraser was revered by the members of the Victoria Medical Society and has been for some years, by common consent, the acknowledged dean of the profession in Victoria.

DR. MELBOURNE RAYNOR

Dr. Melbourne Raynor, a respected member of the profession and highly esteemed citizen of Victoria, B. C., died at St. Joseph's Hospital, on November 28, 1925, of severe burns, due to an explosion of gaso-line. Dr. Raynor was born at Rose Hall, Ontario, 1879, of United Empire Loyalist stock, his greatgrand-parents moving to Ontario in those early in Canada. He was educated at Pictou High School

and thence went to Guelph, graduating as Bachelor of Science and Agriculture in 1900. He received his medical degree at the University of Illinois in 1905. He began practice in He began practice
British Columbia as a
medical missionary and
after four years in the
missions and hospital work at Bella Bella and Clayoquot, he came to Victoria and accepted a position as house surgeon to St. Joseph's Hospital, and after a year in that service he began his practice in Victoria. Dr. Raynor was as widely known for his private benevolence and activities in behalf of the public welfare, as he was through his extensive medical practice. He was a man of splendid character, an ardent student of social problems, who gave a great deal of his time to the youth of the city. He was one of the founders of the Victoria West Brotherhood and its first president. This was one of the strongest organizations and most successful community efforts in the city. He was a Y.M.C.A. worker and a member of the National Council of Y.M.C.A. of

Canada. His views and opinions were always respected. All forms of vice were known to him as foes

of mankind, and therefore his natural enemies.

Dr. Raynor was greatly interested in public health work and was chairman of the Health Committee of the Chamber of Commerce and president of the Victoria Anti-Narcotic League. He was a member of the Victoria Medical Society, of the British Columbia and of the Pacific Northwest Medical Associations. He had been elected local secretary of the Canadian Medical Association for the 1926 meeting in

Victoria. He had worked with much energy to secure the meeting in his city and was prepared to bend every effort to ensure a successful convention. He had already done much toward the preparation of plans for the meeting.

In 1924 Dr. Raynor was the Liberal candidate in the provincial elections. Although but a young man he had achieved much and gained a high place in the respect and admiration of his co-workers.

Dr. Raynor is survived by his widow, twin

sons and a daughter.
T. A. THOMAS



DR. MELBOURNE RAYNOR

AN APPRECIATION
'I have left to my
friend Dr. Thomas, the
duty of detailing the early part of Raynor's life, as apart from the newspaper reports, I knew little about it; but from the time he was the first interne at St. Joseph's Hospital, I have watched his career with interest, and admired his character as one does when it differs vastly from one's own. He, the ardent preacher against alcohol, I the teetotaller by necessity but not by choice or conviction - Raynor, always out for what he called the social uplift, I, looking quietly on and rather feeling that such uplift is a matter for each person to work out for himself no matter what his position. If Raynor had lived in the time of Charles the First, I can picture him on the Cromwellian side holding high office, going into battle singing hymns, and performing feats of valour, not considering personal safety a bit. Strangers to Raynor will therefore gather from this

oblique eulogy that he was most conscientious, hard-working and rather highly strung, and I think his health suffered on this account, and that he was ren-dered more prone to the attacks of pleurisy which he bore so bravely, and from which we all hoped he was steadily recovering.

Raynor was a man of sterling character, straight in all his dealings, and his premature and tragic death causes universal regret to a large circle of friends and patients."

FORREST LEEDER

Dr. Hedley L. Anderson, who for over forty years practiced in Niagara-on-the-Lake, died in Toronto on November the 11th. A graduate in medicine in 1868 of the Toronto Medical School, Dr. Anderson at once chose the Niagara district in which to carry on his practice where ever since he has been recognized as one of the most successful practitioners of that district.

Dr. H. G. Lackner, sheriff of Waterloo county, and for many years representative of North Waterloo in the Ontario Legislature, died suddenly on December the 4th. Dr. Lackner was born in Hawkesville in 1851; he taught for some years after leaving the old Berlin Grammar School, and later graduated as a gold medalist from the Toronto School of Medicine in 1876. For fifty years he carried on the practice of his profession in Kitchener, but was always interested in municipal affairs, serving as alderman, and at one time as a mayor of the town. Always recognized as a physician of the highest standing, he took an active interest in all public matters. He is survived by his son, Dr. H. M. Lackner.

Dr. W. H. Lowry, one of the oldest and best

known of the medical men of the province, died in Guelph on November the 24th. Dr. Lowry came to Guelph seventy years ago; he was educated there and graduated as M.B. in 1874 from the Toronto Medical School. He practiced at first in Acton, but afterwards removed to Guelph, where he continued his activities until five years ago.

Dr. John McAlpine, one of the oldest and most prominent members of the medical profession in Lindsay, died on December the 6th, aged seventy-six years. A graduate as bachelor in medicine of the Toronto Medical School, he took his doctorate from Victoria College in 1875, Dr. McAlpine spent forty years in practice in Lindsay, going there after a few years' work at Janetville. He was for some time medical health officer at Lindsay and was well known for his activities in this connection as well as for his skill in practice.

Dr. Richard Victor Fowler, of Perth, Ontario, died in the Ottawa Civic Hospital, aged sixty-three years. He was a graduate in arts of Victoria College, and for some time taught in Perth on the staff of the Collegiate Institute. Later on he graduated from Trinity Medical School in 1892.

On December 9th, the death occurred of Hon. L.

P. Farris at the home of his son, Dr. H. A. Farris, Superintendent of Saint John County Hospital.

Hon. Mr. Farris was eighty-two years old and a native of Queens County, New Brunswick. He had been a member of the Provincial House for sixteen years and was widely known throughout the province. He is survived by his widow and four sons, J. W. DeB. Farris, K.C., former Attorney-General, British Columbia, Dr. H. A. Farris of East Saint John, Bruce M. Farris, and Wendell B. Farris of Vancouver.

A. S. KIRKLAND

Dr. Robert Allan Lee died at his home at Frobisher on December 5th after a short illness. He was buried at his native place Bethany, Ont. Dr. Lee was educated in the public schools at Bethany, where he was a teacher for some years. At the age of thirty-eight he commenced the study of medicine at Queen's University, graduating five years later. He established a practice at Frobisher and rapidly won an enviable place in the esteem of the community. He was long prominent in Masonic circles and at the time of his death held the office of District Deputy Grand Master. Dr. Lee is survived by his wife.

News of the death of Sir Richard Douglas Powell, for many years President of the College of Physicians, London, reaches us as we are going to press. A full notice will appear in our next issue.

Variations of the Intestinal Rate.—The time taken for substances to pass through the human intestine is generally supposed to be from twenty-four to forty-eight hours. But in adjusting the diet of many patients to conform with the physiology of nutrition as determined by the unit form of the feces, Francis Lowell Burnett, Boston, found that a marker not only generally took sixty-two hours to appear but also continued to be dejected for 134 hours. The development and maintenance of the normal tissues are largely dependent on the assimilation of nutrient substances absorbed from the alimentary canal, and while the anabolic processes are very complex and far beyond comprehension at present, a great deal can be learned about absorption from the course of the aliment through the intestines and its final molding in the feces. The variations that occur in the intestinal rate and the feces are so insidious that symptoms are not often produced and yet little by little they must influence the anabolic processes and the sustenance of the tissues. Perhaps these variations are the first sentinel to give a warning of a bodily disorder, but if the warning is not observed and corrected, malabsorption continues, the factors of safety in the tissues become exhausted, symptoms are produced, and then some readily recognized disorder is apparent. Digestion and absorption in the most highly developed organism is an exact process, and many factors have to be taken into account in adjusting the diet to the critical requirements of the body for nourishment. In general, however, when the amount of aliment is reduced and the quality improved in patients with psoriasis, the feces become formed in units, and the intestinal rate changes from a rapid one of from fourteen to sixty-two hours and malabsorption, to one of from sixty-three to 134 hours. When this kind of absorption and the anabolic processes associated with it continue for some time, the skin becomes healthy but remains so only as long as it receives this kind of nutrition. In this form of dietary treatment the adjustment of the alimentary mixture is merely made to conform to the precise, automatic and apparently normal action of the colon in the physiology of nutrition. By this action the proximal colon is formed by the closure of constricting rings in the intermediate colon. The formation of this digestive pouch appears to be brought about when the demand for nourishment is greater than the supply, and this also excites waves of antiperistalsis.—Jour. Am. Med. Ass., Dec. 5, 1925.

Medical News from the British Empire

GREAT BRITAIN

PROFESSOR J. N. LANGLEY, M.D., F.R.S.

Late Professor of Physiology, Cambridge; Editor of the Journal of Physiology

A PERSONAL REMINISCENCE

When Professor J. N. Langley died on November 5, 1925, at the age of seventy-three years, the science of physiology was robbed of one of the most energetic and painstaking of its workers. It is to the lasting honour of the University of Cambridge that his life of devoted research was spent continuously within its precincts. He came to Cambridge in 1871 as a scholar of St. John's College intending, as I once heard him say in conversation, to read for the Bar. But this was the very year in which Michael Foster became Prælector in Physiology in Trinity College; the year, that is, from which the recognition by the university of the science of physiology as a separate branch of study with problems and requirements of its own may be said to date. Langley seems to have been attracted almost at once by the possibilities for vigorous growth that the new subject displayed; he discarded his legal studies and read for the Natural Sciences Tripos, in which he duly obtained first class honours, and then immediately devoted himself to the prosecution of the long series of researches which proved in his hands to be so fruitful of far-reaching results, and which remained his chief interest until within a few hours of his death.

His earlier work was concerned with salivary and gastric secretion, and in this connection his detailed study in various animals of the physiology of the nerves supplying the submaxillary gland may be said to have foreshadowed that more general study of the nervous control of visceral function that absorbed so large a share of his energies, and which contributed most to the establishment of his lasting world-wide reputation. The possibility of such an extensive study of the "autonomic" nervous system (as he himself named it) arose from his primary discovery that nico-tine first stimulates and then later paralyzes the single synapse that is invariably found to occur between the point of emergence from the central nervous system and the final destination of an autonomic nerve fibre. It was the possession of the scientific insight necessary for the taking of full advantage of this discovery that enabled Langley to develop from it a general method by which he could determine the point at which any such nerve fibre formed its cell station, and so ultimately map out the distribution of the whole system. Incidentally, seeing that the effect of a drug on a nerve ending is determined to so large an extent by the system of nerves to which that particular ending belongs, he had occasion to investigate the action of many other drugs besides nicotine, but although his work occasionally tended to carry him towards the domain of pharmacology, his main interest always centred less on the properties of the drugs themselves, than on their use as weapons for the elucidation of normal function. The records of these laborious researches are confined practically entirely to the successive volumes of the nal of Physiology to which Langley contributed right from its foundation by Michael Foster in the early 'eighties. It is to be regretted that he delayed until 1921 the publication of a general account of this main part of his life's work, for the volume that he published even then under the title "The Autonomic System" was but Part 1 of a larger work that he

intended to complete later. But to the distress of his publishers he always declared that he had other problems to solve before the remainder could be written with that scrupulous accuracy and authoritative thoroughness which alone would satisfy him. Indeed it is characteristic of him that in his mind the carrying out of an investigation was of more importance than the subsequent publishing of it; in his researches the importance of the conclusions already won never detracted his attention from the urgency and interest of the unsolved problems that his work had laid bare to his hands. For him there was no finality—no point at which he could regard his work on any subject as complete, so that nothing remained but to record it. And this same characteristic attitude of mind showed itself again in the wealth of information and ideas that he would command when his advice was sought on some special problem; he had available a surprising fund of knowledge obtained mostly at first hand from his own previous researches, but not to be found in any of his published works.

And yet there are two ways in which he was particularly concerned with the publication and dissemination of physiological knowledge. During Foster's professorship, Langley carried on a considerable amount of the more advanced teaching of the subject and when on Foster's retirement in 1903 Langley succeeded to the chair the amount of teaching he carried on was considerably increased, as he continued the tradition set by his illustrious predecessor that it was the duty of a professor to deliver the introductory and elementary lectures in his particular subject. This tradition he maintained during the whole of his twenty-two years of tenure of the chair, not merely appearing with unfailing regularity in the lecture theatre, but afterwards working side by side with his demonstrators in the laboratory and setting them an example of conscientiousness, and patience with even the most elementary or backward student, that must have made a lasting impression on all who have had the privilege of witnessing it.

Then secondly, Langley inherited also from Foster the editorship of the Journal of Physiology, and in his capacity as editor he never ceased his efforts to maintain the highest standard of reliability in the material he published. He minutely summarized every manuscript submitted to him, examined carefully the logic of the conclusions arrived at, and often handed it on for detailed criticism to an expert in the particular field dealt with, before passing it for publication. The result is that the Journal of Physiology stands in the forefront, not merely of journals devoted to physiological research, but of scientific journals in general, for the trustworthiness and scientific value of the articles it contains.

Under Langley's influence the school of physiology

Under Langley's influence the school of physiology in Cambridge soon outgrew the miserable accommodation provided for it. But no lack of material conveniences could constitute a permanent obstruction to the ardour of the group of brilliant workers that gathered around him. One has but to remember the names of Anderson, Keith Lucas, Hopkins, Fletcher, A. V. Hill, Rivers, Barcroft and Mines, and to read the works published by these authors during Langley's professorship, in order to obtain a vivid picture of the glories of Cambridge physiology in the decade preceding the war. By the early summer of 1914, through the munificence of the Drapers' Company of London, a modern laboratory was completed and opened for the Cambridge school of physiology, but its proper equipment was prevented by the un-

NEWS 103

forgivable disaster that a few weeks later overtook the civilized world, and all further developments were at an end for several years. But there is some comfort in the thought that, unlike so many of his colleagues, Langley lived to see at least the beginnings of the recovery of his school from the blow that it, in common with scientific institutions the world over, then received. It has been said that in the absence of sheer wasteful administration the only healthy condition of a scientific department is one of bankruptcy. But Langley abhorred debt, and so, by his efforts to balance his accounts at the end of each working year, he may be said to have deprived himself unwittingly of one of the most forcible means of advertising the needs of his school during the difficulties of that post-war recovery period.

For all the untiring energy with which he devoted

himself to his scientific work, the late professor had many outside interests. In his younger days he was an athlete of no mean order, and was particularly fond of winter sports. He was one of the most expert skaters that Cambridge has ever seen, and never missed the opportunity—all too rare of recent years—of indulging in his favourite form of exercise. He showed the benefits of these athletic activities right to the end in his fine upright carriage and certain step. Of recent years he developed a passion for gardening and was something of an authority on the culture of roses. So much so, that there was hardly an easier way of bringing a smile of pleasure to his face, than by an enquiry as to the welfare of the flowers he delighted to tend in that long quiet garden just on the edge of the town where the gentle, soothing Cambridgeshire countryside begins.

T. R. Parsons

SOUTH AFRICA

The following editorial is taken from a recent issue

of the South African Medical Journal:

"We publish in this issue a review of Sir Andrew Macphail's readable History of the Canadian Medical Services during the Great War. The sister Dominion is indeed fortunate in having found so able a recorder, and in having so much that is interesting and valuable, both from an administrative and from a pure scientific point of view, to record. Particularly interesting, because it is particularly on this subject that we require expert advice and the guidance of experience, is Sir Andrew's comment upon the relationship between civil practitioners and medical men who have enjoyed the privilege of staff training and military hygiene. There is an impression, not, unfortunately, confined to Canada, that in time of emergency the undisciplined—we use the term in no invidious sense but merely as connoting the reverse of the regulation trained army medical officer—civil practitioner can organize, handle, and successfully control medical units in the field and at the base. The sooner that mistaken impression is corrected, the better.

Sir Andrew's book raises another, and perhaps equally interesting question. The experiences here chroncal experience of the great war to which our own Union forces in the field have also contributed. Yet there is no such printed record of what our own medical units have accomplished. It is true there is a slight, sketchy memorandum on the doings of the S.A.M.C. in the Rebellion and the German-West campaigns, appended to the official history of these two expeditions that has been published by our own Defence Department. But that memorandum is the baldest and most uninteresting enumeration of facts. Our medical units, both when serving in Africa and when serving overseas, are deserving of a better record than that. Why should the Department of Defence not commission some South African medical officer, just as the Canadian Government has commissioned Sir Andrew MacPhail, to write that record and do for our units what Sir Andrew has done for the Canadian medical services?"

news 3tems

GENERAL

At the recent meeting of the Radiological Society of North America in Cleveland, the Canadian medical profession was well represented by a very large delegation of radiologists, including Dr. G. E. Richards from Toronto, Dr. L. R. Hess of Hamilton, Dr. J. G. Stone of Windsor, Dr. H. E. Schaef of London, Dr. L. E. Pariseau of Montreal, Dr. J. L. Carter of Brandon, Dr. C. M. Henry of Regina, Dr. Mooney of Edmonton, Dr. W. H. McGuffin of Calgary, Dr. H. MacIntosh of Vancouver, Dr. C. H. Burger of Winnipeg, Dr. R. Michaud of Winnipeg, Dr. G. H. Malcolmson of Edmonton and Dr. A. S. Kirkland of St. John. Dr. W. H. McGuffin of Calgary was First Vice-President of the Society for the year 1925.

In a generally successful meeting, it is difficult to choose outstanding contributions but in the recent meeting, two original presentations provided unusual interest. Dr. Jacques Forestier of Aix-les-bains, France, delivered

several addresses on the diagnostic and therapeutic uses of lipiodol, a medium for x-ray diagnosis perfected by himself. He demonstrated its usefulness in diagnosis of bronchiectasis, lung abscess, lung cavity, spinal cord tumours, ventriculography and in the demonstration of the patency of the Fallopian tubes. This distinguished scientist was the guest of honour of the Radiological Medical Society.

Dr. Everts Graham presented further advances in

Dr. Everts Graham presented further advances in the uses of tetraiodophenolphthalein in diagnosis of gall bladder work. He also mentioned the uses of the isomeric salts of this chemical formula in demonstration of liver function tests and renal function tests. Dr. Graham was presented the gold medal of the Radiological Society in recognition of his great assistance rendered to physicians, surgeons and radiographers in the diagnosis of gall bladder lesions.

A. S. Kirkland

NOVA SCOTIA

As a result of a recent inspection by Dr. N. P. Colwell, the secretary of the Council on Medical Educacation and Hospitals of the American Medical Association, the medical school of Dalhousie University has been given Grade A rating by that Council.

The Digby General Hospital has completed its first half year of service, and is meeting with encouraging support from the people of its constituency. A bazaar held recently in the interests of the hospital netted more than two thousand dollars.

The vital statistics for Nova Scotia for the month of July show 1,011 births and 432 deaths as compared with 986 births and 485 deaths in July of 1924. Deaths from tuberculosis, all forms, numbered thirty-nine as against forty-eight in the corresponding month of 1924. The infant mortality rate was 65.2 as against 87.2 in the preceding month.

The annual meeting of the Children's Hospital, Halifax, was held on the tenth of November, with the president, Mr. O. E. Smith, in the chair. A very successful year was reported. The number of admissions and the number of surgical operations were both in excess of any previous year, and the demand upon the hospital has become such that considerable enlargement must be undertaken very soon. The financial conditions improved during the year, and the endowment fund was substantially increased. Many of the little patients treated in this admirable institution were from points outside the city, the policy of the management being to make the advantage of the hospital available to needy sick children throughout the province.

The graduating exercises of the training school for nurses of the Victoria General Hospital, Halifax, were held on the nineteenth of October, and were largely attended by friends of the graduates and of the hospital. The chair was occupied by the chairman of the Hospital Commission, Hon. George E. Faulkner. Diplomas and prizes were presented by Hon. Gordon S. Harrington, Minister of Public Works, who referred to the high standard the hospital has reached and congratulated the recipients of the diplomas upon their success. Dr. Frank Mack then addressed the graduates, tracing briefly the history of nursing, noting the influence of advances of medical knowledge, and impressing upon the diplomates the responsibility of the nurse's duties. The large hall was tastefully decorated, and several musical numbers added to the pleasure of the occasion. The graduating class numbered twenty-eight.

The pathological department of Dalhousie University has been singularly fortunate in its friends. two years ago a valuable collection of pathological specimens, about one hundred in all, was received from Sir Charters Symonds, of London, Consulting Surgeon to Guy's Hospital, and an old Maritime Province boy. These included various appendices, gall-bladders, calculi, and diverticula of the esophagus, to mention only Now, Professor Caird, of Edinburgh, has presented to the department of surgery his private collection of bones and plaster casts. In this there are about thirty crania and portions thereof, illustrating fractures of the skull and lower jaw, syphilis, trephining operations, and ear and mastoid affections. There are also specimens of tuberculosis of the vertebral column and chronic spondylitis, fractured ribs and fractured pelvic Very many of the long bones are included in the collection, illustrating various fractures, rickets, osteo-myelitis, tuberculosis and osteo-arthritis. The casts number upwards of one hundred, and depict such conditions as club-feet, tuberculosis of the joints, tumour of the lower jaw, syphilitic ulcers, deformities of the fingers, hydrocephalus, and large calculi. Altogether the collection is a most valuable one and fills a long felt want for teaching material along these lines. The university owes great thanks to the donors, and also to Dr. John Stewart, the Dean of the Medical Faculty, through whose good offices, doubtless, these valuable gifts have become possible.

The Halifax Branch of the Medical Association of Nova Scotia held its first clinical meeting of the session at the Nova Scotia Hospital, on the evening of November 18th. Dr. Lawlor, the superintendent of the hospital, related a number of experiences which illustrated not merely the difficulties which associate with the treatment of surgical conditions in the insane but the possibility of their recovering from serious operations despite their most contemptuous refusal to observe the accepted rules relative to rest, diet, care of dressings, etc. Dr. Murray presented two interesting cases of general paralysis of the insane, and Dr. Hopkins gave a short description of melancholia, with the exhibition of several cases. After adjournment, Dr. Lawlor entertained the members at a very enjoyable supper.

An exceptionally interesting clinical meeting of the Halifax Branch of the Medical Society of Nova Scotia was held at the Victoria General Hospital on the 2nd of December. Dr. Eager showed a patient in whom a large intrathoracic tumour had disappeared under high voltage treatment, and also a number of x-ray plates demonstrating the value of intravenous injections of a solution of tetroiodophenolphthalein as an aid to x-ray examinations in gall bladder conditions. Dr. Murphy presented a man, just admitted to hospital, with several wounds resulting from the accidental discharge of a rifle. The x-ray showed a fragment of bullet in the An abdominal wound raised suspicion of injury to intestinal viscera, but twelve hours had passed since the accident and no abdominal symptoms had become manifest. Dr. Murphy also demonstrated a patient who had been admitted for compound fracture of tibia and fibula. Although the wound was very dirty, it had healed nicely and there was no shortening. Dr. Hogan showed a patient who had been operated upon elsewhere for gastric ulcer. The scar of the wound showed an enormous development of keloid. The condition had improved considerably under radiation. He also showed radiograms of an extensively comminuted fracture of both bones of the leg, the result of a motor car accident, just admitted to hospital. Dr. H. K. Mac-Donald presented a man who had been admitted to hospital for symptoms thought to be referable to a varicocele. He had been previously operated upon elsewhere, but without relief. Although there were no symptoms suggestive of kidney involvement, he had referred the patient to Dr. Mack for a cystoscopic examination, and a large hydronephrosis had been discovered. A plastic operation had been performed, with every promise of a very satisfactory result. X-ray plates were shown. Dr. Curry showed a man who had been admitted for a very extensive hæmatoma involving the whole left side of the face. The condition had developed after a blow received while boxing. On two previous occasions the patient had had smaller tumours develop after traumatism, which had been incised by his physician, and blood clots removed. While hesitant about operating, indications of sepsis determined Dr. Curry to do so. He turned out large clots but found the tissues very friable, and free hæmorrhage at once convinced him that he was dealing with a cirsoid aneurism. It was necessary to tie the left external carotid artery in order to control the hæmorrhage. When dressings had to be changed, hæmorrhage was again so severe as to require ligation to the corresponding artery on the right side. There was still much swelling, the upper eyelid being enorNEWS 105

mously distended, but the condition was steadily improving. Dr. Mack presented a young woman who had been admitted for extensive ulceration of soft palate and other tissues. The Wassermann was strongly posiand other tissues. The Wassermann was strongly posi-tive. The particular feature of the case was the rapidity with which the destructive process had devel-oped and extended. Antiluetic treatment had met with prompt and satisfactory response. He also presented a man who had been admitted for very extensive ulcer-

ation of the legs. While anti-syphilitic treatment had effected much improvement, the scar tissue promised to be a very troublesome factor and it was a question whether or no skin grafting would obviate the necessity for amputation. A free discussion, in which many members took part, followed the presentation of the cases. After adjournment the members were the guests of the super-intendent of the hospital, Mr. W. W. Kenny, at a very enjoyable supper.

NEW BRUNSWICK

Dr. and Mrs. L. E. German of Campbellton are being congratulated on the birth of a daughter.

Dr. F. H. Wetmore has returned from Montreal very much improved in health after a considerable sojourn in the Royal Victoria Hospital.

In November, the Rotary Club at Campbellton was addressed by Dr. L. G. Pinault on the subject "What the laity should know about cancer." The Club, unanimously, decided that this address should be published in the local papers. Dr. Pinault is to be congratulated on presenting a rather technical subject in so interesting a manner as to make such an impression on his lay fellow citizens.

During his visit in St. John, Dr. J. Appleton Nutter of Montreal was kind enough to operate on two cases at the St. John County Hospital. One of these cases was a bone graft in a tubercular spine, the other an arthrodesis in a tubercular knee. These cases were prepared by Dr. Farris, Superintendent of the St. John County Hospital.

Dr. H. A. Farris, Superintendent of the St. John County Hospital, gave a talk to the St. John Dental Society at the Admiral Beatty Hotel on Dec. 4, 1925, on "Focal infection." He discussed all focal infection, but especially disease of the antrum in relation to the dentist. It would be a good idea to have the dentists and medical men meet more frequently; much good would come from such meetings and better understanding on the part of both.

In pursuance of a scheme to provide better hospital service in the small hospitals of the province, the Hotel Dieu at Campbellton has sent two of their nursing sisters to the General Public Hospital at St. John for a three months course in their respective specialties. Sister months course in their respective specialties. Shannon is at present working in the pathological department under the tuition of Dr. Abramson. Sister St. Joseph is taking special study in dietetics under the dietitian, Miss Margaret Stewart, with special instruction in diabetic diets.

At a meeting of the Westmoreland County Sub Dis-

trict Board of Health, held in Moncton on December 15th, a resolution was adopted to the effect that action be taken by the Board in the future in any case in which a physician neglects to report a contagious disease. This action arose out of a discussion of the recent epidemic of diphtheria in Moncton and scarlet fever in Shediac. Dr. Desmond initiated this discussion and read extracts from the law relating to such cases.

The St. John Medical Society was privileged to entertain Dr. J. Appleton Nutter, Montreal, and Dr. T. C. Routley of Toronto at their meeting on December 14th. The meeting took the form of a dinner at the Admiral Beatty Hotel. The attendance of local physicians was thirty-nine. Dr. Nutter spoke on the subject of "paralytic deformities in children." His address was short, concise and most practical. Dr. Routley outlined the plans of the Canadian Medical Association with special reference to organization and the conduct of an extra mural lecture course. This visit of Dr. Nutter and Dr. Routley inaugurates a new department organized by the Canadian Medical Association of extra mural lec-The St. John physicians keenly appreciated the fact that their city was the first to benefit by this plan. They hope that many such lectures may find their way to the Maritime Provinces.

The New Brunswick Tuberculosis Association with the co-operation of the New Brunswick Department of Health and the staffs of a provincial sanatoria, recently conducted a school survey of five hundred and seventyeight children from the public schools of Rexton and Moncton. The examination of each child included physical examination, history, x-ray examination and tuber-culin test. Fifty-seven per cent of these children gave a positive reaction of the intracutaneous test, this being the highest percentage found in any survey carried out in this province; one per cent of all cases showed active tuberprovince; one per cent of all cases showed active tuberculosis. Other diseases discovered during this routine
examination were: malnutrition 20 per cent, diseased
teeth 60 per cent, diseased tonsils 20 per cent.

Dr. G. N. Wherrett, travelling diagnostician for
New Brunswick was in charge of the survey, assisted by
Dr. Collins of River Glade and Dr. Farris Grant, and

Dr. Sherman of St. John. A. S. KIRKLAND

OUEBEC

Health League in Montreal Will Undertake Important Work

The Anti-Tuberculosis and General Health League in Montreal, has undertaken to act as a branch of the Canadian Social Hygiene Council for the purpose of carrying on social hygiene work, according to an announcement made by Dr. A. Grant Fleming, managing director of the Health League. A special Society Hygiene Committee will be created in order to assure that this work will receive an adequate share of the energy of the League. As a branch of the Canadian Social Hygiene Council this Committee will endeavour to promote more complete development of health work, particularly in the social hygiene field in Montreal; to provide local re-presentation of the Canadian Social Hygiene Council in Montreal, and thus avoid the creation of a new health organization.

Dr. Boucher in his report quoted statistics to show how the death rate had appreciably decreased in the past ten years. There have been very few cases of typhoid fever and these have all come in from outside municipalities. Smallpox has been non-existent. The growing belief of the people in vaccination is responsible for this excellent state of affairs, as is the growing use of antitoxin responsible for the decrease of diphtheria. The hygiene practiced by the Public Health Department aims at the prevention of diseases rather than at the cure.

Chambre de Commerce backs Hospital needs.—The Chambre de Commerce went into special session recently for the purpose of deliberating upon the representations submitted to the body by representatives of the Montreal Hospitals' Commission. The members were convened under the chairmanship of Paul Joubert, President of the Chambre, and after discussing the features of the report, passed resolutions recommending that each municipality be made responsible for its own poor and that penalties be imposed for false declarations; that hospital subsidies be increased from \$1.34 to \$2.00 per patient; that a rate of thirty-five cents a visit for public dispensaries be established.

Plans have been drawn for the establishment of a hospital for the criminally insane at Bordeaux, capable of accommodating some 300 patients. One of the wings of the present Montreal jail in that district which has not been completed, will be fitted out as a hospital, and in it will be accommodated the numerous prisoners who have shown by their crimes their mental weakness. There are many who have committed murder and arson at present detained in various mental hospitals and asylums throughout the province who will then be brought to this place. Arrangements have also been made for the Sisters of Charity to float loan of \$550,000 for the construction of a new build-

ing at their St. Michel Hospital, Beauport. This building, which will constitute a "school for the feeble minded," will be devoted to caring for such imbeciles and other feeble minded patients as are capable of being educated. They will there be trained to take proper care of themselves and will, if possible, be taught to do something as a means of earning a living. The provincial government will pay the sinking fund on the loan raised for this purpose at the rate of \$11,000 per annum for twenty-six years.

Premises for the nursery school to be operated in connection with the medical faculty of McGill University for the purpose of child study have been acquired at 814 University Street, just below the medi-cal building. The house is being entirely reconstructed and is expected to be ready for the opening about the middle of January. The most up-to-date equipment for work and play, and a summer and winter play-ground are some of the features. Miss Gwendoline Watkin, of the Gypsy Hill Training College, one of the best known and most up-to-date establishments in England for the training of teachers for nursery school and kindergarten work, has been engaged to take charge of the school. She is a gifted teacher, who is reported to have an excellent record in the education of young children and in child welfare work. number of pupils to be taken at the new nursery school will not exceed twenty. They must be between the ages of two and four, and will be chosen regardless of status from the large number of applications which are pouring in. The fortunate children selected will have the best care that science can provide. Asked if there will be fees to the children entering, Dr. Martin said that a sum covering the barest expenses will be charged. The nursery school has been founded and equipped for child study with an endowment from the Laura Spelman Rockefeller Memorial Foundation of \$50,000 spread over a period of five years, and the extra sum of \$1,500 for equipment.

ONTARIO

PREPARATIONS FOR THE ANNUAL MEETING OF THE ONTARIO MEDICAL ASSOCIATION

Active work in preparation for the 1926 meeting of this Association in London is well under way by the President, Dr. J. A. Macgregor, and his committee. At a special business meeting of the Academy of Medicine, London, Nov. 10th, Dr. Routley was invited to assume the Chair and direct the proceedings, and since then two meetings of the Committee on Arrangements have advanced the preparations for the May meeting to such an extent that the general scheme is well outlined. The programme is in process of formation in accordance with the expression of opinions received in answer to the questionnaire sent out by the secretary. There will be general sessions with a grouping of allied subjects and an opportunity for discussion at the close of each group of addresses will be given. This discussion, it is pointed out, will be confined strictly to questions, and the time limit for such discussion is made absolute.

The Entertainment and Reception Committee are able to announce that London is coming forward with invitations that will afford many opportunities for relaxation after the business of the day, and comfortable accommodation is assured for a large attendance. One evening session will be in the nature of a public meeting as a tangible method of improving the inter-relations of the public and the profession. There will be

a dinner dance on another evening and the "wind-up" will be in the nature of several alumna banquets of the "Do you remember" variety which everyone will want to attend.

GEORGE HALL

The local Committee of Arrangements are as follows: President, Dr. John A. Macgregor; General Secretary, Dr. T. C. Routley; Chairman of Local Committee of Arrangements, Dr. A. J. Grant; Local Secretary, Dr. F. W. Luney, Institute of Public Health; Reception, Dr. Evan E. Davis; Entertainment, Dr. George Hale; Transportation, Dr. John I. Ferguson; Publicity, Dr. Geo. A. Ramsay.

Chairmen of Section Committees:—Anæsthesia, Dr. Gordon L. Jepson; Eye, Ear, Nose and Throat, Dr. Septimus Thompson; Medicine, Dr. F. T. H. Campbell; Obstetrics and Gynæcology, Dr. Wm. P. Tew; Pædiatrics, Dr. Harold Little; Pathology, Dr. H. H. Bullard; Radiology, Dr. H. E. Schaef; Surgery and Urology, Dr. E. D. Busby.

The pamphlet consisting of the papers on tuberculosis printed and distributed by the Canadian Tuberculosis Association following the annual meeting in Montreal, May 14th, 15th and 16th, contains many papers of exceptional interest. It is noteworthy that a very proper percentage of the papers are contributed by members of the Association from Quebec. In one paper "Atelectasis of the lung" by Dr. A. H. Farris, appears the note of the existence of the condition

NEWS 107

called massive collapse, it is important to a degree to called massive collapse, it is important to a degree to realize that this heretofore unobserved accident may be a concomitant of pulmonary tuberculosis. It has been noted that massive collapse may occur in connection with other pulmonary diseases, but so far reports of this being met with in tuberculosis are lacking. Practical problems are discussed in other papers and the whole pamphlet is a valuable contribution.

The Sisters of St. John the Divine have opened in the woods near Eglinton, the St. John's house of rest, which they state is for the convalescent, for the fatigued nervous woman, and for the tired business woman who wants a quiet week end; and they state that any one who comes to them can be sure of a thorough rest and and in beautiful surroundings. Application can be made to the Sister in charge, St. John's House of Rest, R.R. No. 1, Eglinton, Ont.

The Harvey Club, of London, met on Thursday, December the 10th and were addressed by Dr. J. J. Heagerty, who took as his subject "Early Canadian medicine."

The Norfolk County Medical Society met at Simcoe treesting pathological specimens. Dr. N. B. Gwyn, of Toronto, addressed the meeting on "Pneumonia and empyema."

Oxford County Medical Society met at Woodstock on December the 2nd. In the absence of Dr. Norman Shenstone who was listed to address the meeting, Dr. N. B. Gwyn, of Toronto, spoke on "Post-operative pulmonary complications." monary complications."

The Academy of Medicine of Western Ontario have held four sessions during the autumn term. On Sept. 12th the programme was furnished by Dr. John Wishart, and Dr. William Waugh, the former taking as his subject "The Evolution of Surgery up to the Time of Lister." The subject chosen by Dr. Waugh was "A Retrospect of Medicine in London." After the meeting a lunch was given with a short musical programme, and the presentation of The Life of Osler, was made to each of the speakers as a souvenir of an evening that had given great pleasure to the audience.

The second meeting was held in conjunction with Number One District owing to the unavoidable absence of the President, Dr. Weston Krupp, of Woodstock, Second Vice-President of the Ontario Medical Association, read the presidential address which was received with enthusiasm. Dr. Jonathan Meakins, of Montreal, presented a paper on the "Treatment of pneumonia," and Dr. Norman Gwyn, of Toronto, on "Post-operative pulmonary complications."

The November session was a talk on "Fractures," by Sir Arbuthnot Lane (Bart.) The winter sessions will be occupied with programmes furnished by local men, in conjunction with the clinical staff conferences of Victoria and St. Joseph's Hospitals, and the institutions adjacent to the city. These meetings will be held on the first Tuesday of each month and all visiting physicians. ing physicians are welcomed.

The Executive for the session of 1925-26 are:—President, Dr. George A. Ramsay; Vice-President, Dr. J. I. Ferguson; Secretary, Dr. E. D. Busby; Treasurer, Dr. W. P. Tew; Committee, Drs. J. A. Wilson, A. J. Grant, S. L. Fisher.

A business session of the Academy was held on Nov. 10th, an important being the adoption of the constitution of the Academy. This was with little change

the same as that of the model furnished by the Ontario Medical Association for guidance of local societies. The representatives and alternates to each of the Ontario Association's committees were appointed as follows :-

County Health Centres .- Member -- Dr. F. W. Luney.

Alternate — Dr. A. J. Slack.
Credentials.—Member—Dr. C. A. Harris. Alternate Dr. John Wishart.

Education.—Member—Dr. Robt. Ferguson. Alternate—Dr. F. R. Miller.

Hospital .- Member -- Dr. Geo. McNeil. Alternate-Dr. F. Louchlin.

Industrial Hygiene.—Member—Dr. C. H. Reason.
Alternate—Dr. T. T. Bowman.
Inter-relations.—Member—Dr. J. W. Crane. Alter-

Inter-relations.—Member—Dr. J. W. Crane. Atternate—Dr. Geo. C. Hale.
Legislation.—Member—Dr. T. C. Wilson. Alternate
—Dr. F. W. Hughes.
Mental Hygiene.—Member—Dr. J. W. Robinson.
Alternate—Dr. S. L. Fisher.
Nominating—Member—Dr. A. J. Grant. Alternate

-Dr. J. R. Armstrong.

Pharmacy.-Members-Dr. E. L. Jepson. Alternate -Dr. H. H. Black.

Public Health-Member-Dr. A. J. Slack. Alternate—Dr. F. W. Luney. Tariff—Member—Dr. E. Seaborn. Alternate—Dr.

F. J. H. Campbell.

Venereal Diseases.—Member—Dr. E. D. Busby. Workmen's Compensation Act.—Member—Dr. Frank

Clegg. Alternate—Dr. E. Davis.
Committee on General Purposes.—Drs. G. A. Ramsay, A. J. Grant, F. J. H. Campbell, J. I. Ferguson.

An eight-bed hospital will be opened in South Porcupine, Northern Ontario, at the beginning of the year. This hospital was bought, equipped, and will be maintained wholly by the Women's Missionary Society of the Presbyterian Church in Canada. It is a two-story frame building, with hot water heating, modern plumbing, and electric light, and has a small operating room. The staff will consist of a superintendent and two nurses, who have already been appointed.

Dr. Fulton Risdon, of Toronto, has been elected to The Presidency of the Oral and Platis Association of America. The Association held its annual convention in Philadelphia during the latter part of October. Dr. Risdon is the first Canadian to be honoured with this

Number 10 District Meeting of the Ontario Medical Association, was held at Port Arthur and Fort William on Tuesday, October 6th. Clinics and addresses at the three hospitals in Port Arthur and Fort William were preesnted by Dr. Alexander McPhedran, of Toronto, and Dr. E. D. Busby, of London, and in the evening, banquet was held at the Kaministiquia Club, Fort William, followed by an address from Dr. T. C. Routley, General Secretary of the Ontario Medical Association; a review was given of the work of the Association dur-ing the past year. There was an attendance of forty, which included several members from the outlying districts.

Number 8 District Meeting of the Ontario Medical Association, was held at Ottawa, on Thursday, October 22, 1925, with an attendance of 200. In the morning, clinics were conducted at the Ottawa Civic Hospital and Water Street Hospital, by Dr. Steven Langevin, Professor of Obstetrics, University of Montreal, and Dr. Donald C. Balfour, of the Mayo Clinic, Rochester, after which a complimentary luncheon was served at the Civic Hospital, by the Ottawa Civic Hospital Commission. In the afternoon, clinics were conducted at the Water Street Hospital by Dr. Roscoe Graham, of the Department of Surgery, University of Toronto, and Dr. Leonard G. Rowntree, of the Mayo Clinic, Rochester. After an informal dinner at the Chaudiere Golf Club, addresses were delivered by Dr. John A. Macgregor, of London, and Dr. T. C. Routley, of Toronto, president and secretary, respectively, of the Ontario Medical Association.

The annual meeting of District Number Five of the Ontario Medical Association, comprising the counties of Ontario Medical Association, comprising the counties of Ontario, Peel, Simcoe, and York, was held at the Academy of Medicine, Toronto, on Thursday afternoon, November 19th, with an attendance of 150. Due to illness, the Counsellor, Dr. R. W. Mann, was not present. The Chair was occupied by Dr. Cooper Cole, Vice-Counsellor of the District. The following cases were presented: "(The divertions of the properties of the countries of sented:-"The duration of tuberculosis from early masked lesions to definite development under ordin-ary conditions," (illustrated by slides), Dr. W. E. Ogden; "Complicated diabetes,—efficacy of prolonged medical treatment before surgical intervention," Dr. F. W. Hipwell; "Cardio spasm,—the use of dilators in treatment," Dr. H. Wales; "Prostatic Abscess as a cause for pains, etc. away from seat of lesion," Dr. G. S. Foulds; "Hydatid cysts of the liver," Dr. G. A. Glionna; "Fracture of the upper-third ulna," Dr. A. A. Beatty; "Compound dislocation of the left elbow with rupture of brachial artery," Dr. H. I. Harris;
"Treatment of burns by tannic acid," Dr. Malcolm
Cameron; "Emotional hypertension," Dr. R. G.
Armour; "Treatment of complete intestinal stasis fol-Armour; "Treatment of complete intestinal stable following operation," Dr. Chas. H. Gilmour; "Sarcoma of pleura," Dr. G. H. Agnew; "Observations in emergency department of Toronto General Hospital," Dr. Geo. E. Wilson; "Splenomyelogenous leukemia," Dr. J. H. McPhedran; "Non-tubercular psoas abseess," Dr. D. E. Robertson; "Undiagnosed case of numbness, coldness and loss of radial pulse in left arm," Dr. Geo. S. Young; "An illustration of Volkmann's ischæmic paralysis due to supra-condyloid fracture of the humerus," Dr. R. I. Harris; "Generalized epileptic convulsions due to frontal tumour," Dr. K. G. McKenzie; "Thoracic aortic aneurysm in a female patient," Dr. J. H. McPhedran; "Osteomyelitis of the tibia," Dr. A. B. LeMesurier.

The semi-annual business meeting of the Ontario Medical Association took place in the Academy of Medicine on Wednesday, December the 9th, at 2 o'clock. Reports from the board of directors, and from the various committees and special committees were received and dealt with. An interesting discussion followed the excellent presentation of the report of the committee on legislature by Dr. J. Ferguson; the reports of other committees, of the secretary, and of the treasurer were received and adopted. The motion to extend free membership to each graduate in medicine was debated at length, it was finally decided to refer the matter to the board of directors with the suggestion that they in turn refer it to the county societies, since

it was felt that free membership of this sort would have to include association with some county society. There was an excellent attendance of delegates, and it was felt that the meeting was one at which much was accomplished.

The second symposium on Industrial Medicine was held at the Academy of Medicine on December the 9th at ten o'clock in the morning. There was a good attendance of doctors interested in industrial conditions. The meeting was addressed by Dr. Irving Clark, of Worcester, Massachusetts, one of the pioneers in the work of industrial medicine in the United States. Dr. Clark gave much first hand information as to the relationship of the employer, employee, and the industrial physician, his advice to the physician that he should consider carefully his relationship not only to the patient but the employer and to the business, was considered timely to a degree. The Hamilton committee "on the notification of industrial intoxication" presented their report through Dr. O. A. Cannon. Dr. T. W. G. McKay, of Oshawa, presented the report of the committee studying the position of the physician in industry. Dr. D. P. Kappelle in speaking to this report related his personal experiences as a part-time work physician. The diagnostic pictures of certain industrial intoxications were presented by Dr. J. R. Riddle and Dr. N. B. Gwyn.

The Academy of Medicine, Toronto, held a clinical evening on Tuesday, December the 9th, at which a most comprehensive clinical programme was put forward. Presentation of interesting cases, reports of certain unusual diseases, demonstration of a group of patients with changes in their eye grounds, and a collection of cases illustrating industrial diseases were on the programme. The meeting was exclusively clinical and many cases of unusual interest were on exhibition.

During November, the Academy of Medicine, Toronto, in addition to its regular programme contributed by local men, was addressed by Sir Arbuthnot Lane and by Professor Blair-Bell, of Liverpool University. Dr. Blair-Bell's paper "on the treatment of cancer in intravenous injection of lead" provoked considerable discussion, and at an address made in the city a few days later by Dr. Joseph Bloodgood, of Baltimore, it was stated that the cure for cancer had not been arrived at.

The annual meeting of the York County Medical Society was held at the home of Dr. Devins, Aurora, on Thursday afternoon, December 17th. Dr. H. I. Kinsey of Toronto, addressed the meeting, his subject being ''Differential Diagnosis of Diseases of the Chest.'' A helpful discussion followed the delivery of this address by those present.

by those present.

The following officers were elected for the year 1926: President, Dr. S. W. Otton, Newmarket; Vice-President, Dr. W. A. Sangster, Stouffville; Secretary, Dr. S. J. Boyd, Newmarket; Treasurer, Dr. H. B. Freel, Stouffville.

S. W. OTTON

MANITOBA

Dr. R. Michaud attended the recent convention of American radiologists in Cleveland.

Dr. T. H. Johnston, formerly of Elm Creek, who has for two years been engaged in practice in Jamaica, has returned to Winnipeg.

At the meeting of the Winnipeg Medical Society held Dec. 18, Dr. J. D. McQueen read an interesting paper on "Low or Cervical Cæsarean Section," and Mr. Ford gave an address on "Principles of Investments for Medical Men." The January meeting will be devoted to a symposium on tuberculosis with the following speakers: Dr. J. D. Adamson, Dr. W. Boyd, Dr. B. H. Olson, Dr. N. J. Maclean, Dr. Geo. Fletcher, Dr. E. J. Boardman.

The Manitoba committee on extra-mural post-graduate instruction are hard at work. They have suggested that one clinical tour be arranged for dates between

NEWS 109

Jan. 15, and March 1. The points to be visited will probably be Brandon, Portage la Prairie, Dauphin, Neepawa, and Morden. It is expected that similar tours will be made in June and August. That country practitioners are interested in the scheme is evidenced by the numerous replies to a questionnaire sent out by the committee.

Miss Mary Martin, R.N., Superintendent of Nurses at the Winnipeg General Hospital, has resigned in consequence of her approaching marriage which will take place early in the year.

Miss Margaret Allen, R.N., a graduate of the Children's Hospital, Toronto, has accepted the position of Superintendent of Nurses at the Children's Hospital, Winnipeg, succeeding Miss D. K. Anderson who has gone to England.

Dr. C. A. Baragar, Superintendent of the Brandon

Mental Hospital and the medical staff have arranged for monthly clinical meetings. Dr. E. W. Montgomery of Winnipeg was present at the inaugural meeting in November.

On the evening of Dec. 17th, a number of the medical friends of Dr. Jas. McGillivray honoured him at a dinner at the Manitoba Club. The occasion was to mark the publication of Dr. McGillivray's first essay in fiction, The Frontier Edders, a tale of the Royal Northwest Mounted Police in the Riel rebellion of 1885. The author's boyhood was spent in the districts in which the rebellion broke out and the work has met with most favourable criticisms. It is published by the Musson Book Company in Canada and Messrs. Hodder & Stoughton in Great Britain. Dr. McGillivray has taken an active interest in the work of the Children's Hospital and last year was president of the medical staff.

ROSS MITCHELL

SASKATCHEWAN

At the annual meeting of The Regina District Medical Society, the following officers were elected:—President, Dr. F. J. Ball, Regina; First Vice-President, Dr. H. C. Hall, Fort Qu'appelle; Second Vice-President, Dr. D. C. Hart, Regina; Secretary, Dr. R. McAllister, Regina; Treasurer, Dr. S. E. Moore, Regina; Executive Committee, Dr. T. A. Morrison, Regina; Dr. H. H. Mitchell, Regina; Dr. U. J. Gareau, Regina; Dr. O. E. Rothwell, Regina; Dr. J. C. Black, Regina.

At the annual meeting of The Swift Current Dis-

trict Medical Society, the following officers were elected:—President, Dr. R. R. Stirrett, Swift Current; First Vice-President, Dr. A. M. Goodwin, Herbert; Second Vice-President, Dr. G. H. Lee, Shaunavon; Secretary-Treasurer, Dr. O. M. Irwin, F.R.C.S., Swift Current; Executive Committee, Dr. P. J. McCue, Gull Lake; Dr. A. R. Gordon, Morse.

Dr. O. M. Irwin, Swift Current, has recently returned from a trip to the Old Country, where he received an F.R.C.S.

ALBERTA

Ex-Lieutenant-Governor the Hon. Dr. R. G. Brett, is now visiting Baltimore, Md. He will spend some time in California before returning home to Banff.

Dr. Willis Merritt, of Calgary, left recently for North Carolina, where he will spend a well-earned holiday. He is expected back about the end of January.

Dr. W. H. MacFarlane, of Calgary, is now associated with the group clinic of Doctors McEachern, Merritt, and McCalla.

Dr. Foster S. Murray, who recently arrived from Halifax, N.S., is now in practice with Dr. McMillan at Claresholm.

The provincial government has under consideration the passage of a bill providing for the appointment of a special board, independent of the Council of the College of Physicians and Surgeons, which will have the power to enforce discipline imposed by the Council of the College of Physicians and Surgeons on practitioners violating the statutes of the province or guilty of unethical conduct. The government has also under advisement the proposal to have a full-time coroner, who will investigate any case of death following an operation.

Dr. R. B. Deane addressed the members of the Calgary Medical Society, December 2nd, on "The Life and Times of Thomas Sydenham." This well-pre-

pared lecture pictured Sydenham as a clinician, who possessed rare powers of observation, and as a thinker not bound by the trammels of custom or of precept, who shed much light on the nature and course of certain acute febrile states. As a man of strong personality and of great independence of thought he was truly one of the master minds of medicine in the seventeenth century.

The Medicine Hat General Hospital is installing a new Otis-Fensome elevator of modern type, the cost of which is being largely defrayed by the local Rotarians.

The Alberta Hospitals Association and the Alberta Association of Registered Nurses held a conjoint meeting in the sunroom of the Palliser Hotel, Calgary, on November 12th and 13th, when papers of much interest to the medical and nursing professions were read and discussed.

Dr. W. C. Laidlaw, Deputy Minister of Health, dealt with the question of "Public Health in Alberta," and spoke of the work of the public health department in regard to inoculation against typhoid fever, and the marked lessening of the incidence of this disease in mining and in lumber camps where this method has been adopted. He believed in the municipalization of hospitals and the establishment of clinics by the individual hospitals as well as the amalgamation of municipalities into health districts. The value of the public health lectures gven by members of the public health service department throughout the province was emphasized.

Dr. E. H. Cooke, Superintendent of the Provincial Mental Hospital at Ponoka, discussed the subject of "General Handling of the Patient and Occupational Therapy." He pointed out the mistake commonly made of considering the mind to be a function of the brain only, whereas it is a function of the whole body
—of all the organs. He told also of the influence of
the ductless glands on the mind. He affirmed that ninety per cent of all mental cases came within the classification of the manic-depressive type. As a therapeutic measure he believed in the "inward cleansing," especially through the use of magnesium sulphate. The induction of laughter as a mental purge is likewise of great value. For the first six months the patient is given soothing baths and a diet of milk and eggs until the stage of excitement subsides and normal sleep returns. Following this, occupational therapy is initiated, either work in the workshops or in the fields. In this way the patient's attention is concentrated and his energy diverted into useful channels.

Many other papers were read dealing especially

with hospital problems.

Resolutions were passed advocating the closing of all badly conducted maternity hospitals, the establishment of government-operated old people's homes, and increased grants to hospitals by the government.

F. E. LEARMONTH

BRITISH COLUMBIA

The 1925-26 sessions of the Fraser Valley Medical Society opened on September 3rd. Officers were elected as follows:—Dr. G. T. Wilson, President; Dr. W. A. Robertson, Vice-President; Dr. O. Van Etter, Sec.-Treasurer. Addresses were given by Dr. S. C. McEwen on "Physio-therapy," and Dr. Bruce Cannon on "Infective infantile diarrhea." A discussion followed in which Drs. H. Collins, W. A. Robertson and D. A. Clark took part.

Clinical meetings of the Fraser Valley Medical Society with presentation of cases and case reports, are held at the Royal Columbian Hospital, New Westminster on the third Thursday of each month.

A "Well Babies" Clinic is held at the Royal Columbian Hospital on the Wednesday of each week.

The British Columbia Medical Association reports with very sincere regret the deaths of Dr. R. L. Fraser and Dr. Melbourne Raynor, both of Victoria, B.C. Dr. Fraser was one of the outstanding figures of the profession in British Columbia, and at the time of his death was a member of the British Columbia Medical Council, a position he had held for many years, testifying to the confidence and trust placed in him by his fellow medical men. Dr. Raynor was also prominent in all matters pertaining to the welfare of his profession. One of his last public duties was his attendance at the last annual meeting of the Canadian Medical Association at Regina. He was appointed the local secretary of the Dominion Association for its forthcoming annual meeting to be held in Victoria in 1926. Articles of appreciation will be found in the obituary columns of this issue of the Journal.

A clinical meeting of the No. 6 District Medical Society (Vancouver Island) was held at Nanaimo on December 4th, when Dr. Geo. E. Seldon, of Vancouver, gave an instructive talk on "surgery of the upper abdomen," and Dr. C. E. Brown, also of Vancouver, on "Rehfuss—diagnosis and treatment." An animated discussion followed each address. The Executive-Secretary of the British Columbia Medical Association gave an outline of the proposed scheme for "Extra Mural Post-Graduate Medical Education," which will be carried on throughout the Dominion by the Canadian Medical Association in 1926.

The December meeting of the Victoria Medical Society was addressed by Dr. A. S. Lamb, of the Provincial Department of Health. He dealt with his work throughout the province, in the capacity of medical consultant in tuberculosis clinics, and in charge of educational propaganda carried on by the

department throughout the province. Greater co-operation in this work was offered by the Victoria profession. Dr. Lamb, in acknowledging the vote of thanks passed to him, expressed his appreciation of the splendid reception he had received and of the increased support he was assured in the clinic work in Victoria.

Dr. W. T. Barrett, who has just returned from a

visit to eastern clinics, told briefly of what he had seen and heard at the Mayo Clinic, at the St. Paul Congress, and at the meeting of surgeons in Phila-

delphia.

Dr. Gordon C. Kenning spoke of his trip through New York, Chicago, Detroit, Montreal and the Mayo Clinic. He prefaced his remarks by a description of the sights and surprises of his trip through the canal zone, and urged those contemplating a visit to New York to travel by boat from Pacific ports through the Panama. These two members were thanked for the fund of information they had brought to the less fortunate who stayed at home.

Dr. Hermann M. Robertson, of Victoria, B.C., has just returned from a journey through the clinics in eastern Canada and States.

Dr. J. S. McCallum, of Esquimalt, B.C. travelled to the eastern centres, and with Dr. Robertson, will tell the Society of their gleanings, at the next meeting.

The annual dinner of the Association was held at the end of November and, as usual, was a great success, 147 members being present.

"Intravenous therapy" was the subject for discussion at the December meeting of the Vancouver Medical Association, held on the first of the month. Papers were read by Dr. Wallace Wilson on "Blood transfusion," and Dr. Lyall Hodgins on "General intravenous therapy." A long and interesting discussion followed the reading of the paper.

An editorial in the December issue of the Vancouver Medical Association Bulletin draws the attention of its readers to the memorable sermon delivered before the British Medical Association by the Bishop of Birmingham. The conclusions drawn by the Bishop of Birmingham. The conclusions drawn by the Bishop as to the position and stability of the many great advances in modern medicine are particularly interesting reading in a city like Vancouver, where "all the paraphernalia of primitive health cults" are allowed to flourish and renew their youth like the eagle.

The clinical meetings of the Association are being

NEWS 111

well attended this winter. At the last meeting held in St. Paul's Hospital, Dr. C. E. Brown gave an inter-esting demonstration of the use of the Rehfuss tube in fractional analysis of the stomach contents; Dr. H.

A. Spohn discussed the thymus, illustrated by x-ray plates from his cases; Dr. H. H. Milburn presented a case of primary spastic paralysis, and Dr. A. Y. McNair gave a demonstration of laboratory specimens.

UNITED STATES

COUNCIL ON PHYSICAL THERAPY

The report of the organization and first meeting of the new Council on Physical Therapy of the American Medical Association, places on record one of the most significant steps taken by the Assovciation in its

attempts to advance modern therapy.

It has become apparent that physical methods have a definite field both in the diagnosis and in the treatment of disease, and that it was incumbent upon some unbiased and scientific body to define the exact merits of the many devices offered to the profession and the public. This sentiment was crystallized in the resolution introduced into the House of Delegates at the last annual session of the Association, in Atlantic City, by Dr. Joseph F. Smith, of Wisconsin. That resolution reads:

WHEREAS, From time to time there are offered for sale to members of the medical profession and to hospitals many non-medicinal agents of alleged therapeutic value consisting of electrical devices, mechanical contrivances, coloured lights, various kinds of lamps, etc., the exact nature and action of which the individual members of the profession at large, because of the lack of the necessary technical skill, adequate facilities

and instruments of precision, are not in a position to evaluate correctly, and

WHEREAS, The purchase of such pieces of apparatus, often on the misrepresentation of persons offering them for sale, results in great financial loss to the mem-

bers of the profession annually, and

WHEREAS, The use of such devices and apparatus without adequate understanding and control on the part of the physicians employing them tends to deteriorate the physicians' alertness in making a diagnosis, thereby resulting in loss of time and money to

patients; therefore, be it

Resolved. That the trustees of the American Medical Association be empowered to appoint a Council on Non-medicinal Agents similar to the Council on Pharmacy and Chemistry consisting of at least two physicists, two physiologists, two pathologists and two clinicians whose duty it shall be scientifically to investigate and report on the value and merits of all nonmedicinal apparatus and contrivances offered for sale to physicians and hospitals, and to publish in The Journal of the American Medical Association from time to time the results of its investigations.

The resolution was approved by the Reference Committee and by the House of Delegates and referred to the Board of Trustees. At its last meeting, the Board of Trustees nominated the members to form this Council. The Council includes representatives of fundamental sciences closely allied to medicine, whose services are necessary in order to evaluate properly

the worthiness of physical apparatus. Manufacturers of apparatus have been urged to submit to the Council's opinion the thousands of devices now available, and to submit also the advertising material, with a view of offering to physicians only such apparatus as may be sold with due regard for established fact. (J.A.M.A., Oct. 24, 1925)

AMERICAN BOARD OF OTOLARYNGOLOGY

An examination was held by the American Board of Otolaryngology on October 19, 1925, at the Cook County Hospital, Chicago, with the following result:— Passed, 120; failed, 23; total examined, 143. The next examination will be held in Dallas, Texas, on April 19, 1926. Applications may be secured from the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

The appointment of Mr. Howard Fox as professor of dermatology and syphilology in the New York University and Bellevue Hospital Medical College has been announced by the University Council. Dr. Fox will succeed the late Dr. William B. Trimble who was a member of the medical college faculty since 1898.

The Massachusetts Society for Mental Hygiene announces that during November it will begin the publication regularly of a new bulletin called The Human Factor, devoted to every-day problems of industrial relations as they relate to mental health. The articles will be written in non-technical language and parti-cular care will be exercised to see that the matter presented through its columns is sound and practical.

At the last annual session of the American Medical Association in May, 1925, a resolution was introduced into the House of Delegates urging the establishment by the Board of Trustees of a journal of path-ology, which should be representative of all sections of this department of medicine. As many are no doubt aware several periodicals devoted to pathology are already available both in this country and abroad. It was the belief, however, of the representatives of the section of pathology and of the editorial staff of the Association that none of those periodicals were fully representathat hole of those periodicals were fully representative of American pathology. The Board of Trustees, therefore, selected the following as members of an editorial board:—Dr. Ludvig Hektoen, Chicago, local editor and chairman of the board; Dr. James Ewing, New York; Dr. W. G. MacCallum, Baltimore; Dr. Williams Charles and Callum, Baltimore; Dr. Williams Charles and Callum liams Ophuls, San Francisco; Dr. Alfred Stengel, Philadelphia, and Dr. S. R. Wolbach, Boston. Under their editorial guidance, a new magazine covering all divisions of this department will shortly make its appearance.

Adenomatosis, or the Diffuse Adenomatous Goiter. J. Earl Else, Portland, Ore., asserts that adenomatosis of the thyroid is a definite pathologic entity differing from adenoma in that the process is diffuse and does not have a true capsule. Adenomatosis produces a hyperthyroidism of the cardiovascular type. It is important to differentiate between adenoma and adenomatosis because the former requires simple enucleation of the tumor growth, while the latter requires subtotal double lobectomy. Journal A. M. A., Dec. 12, 1925.

Book Reviews

The Surgery of Pulmonary Tuberculosis. John W. Alexander, B.S., M.A., M.D. 356 pages, 65 illustrations. Price \$4.50. Lea & Febiger, S. Washington Sq., Philadelphia, 1925.

Very seldom can it be said in this day of teeming presses, and a making of books beyond Solomon's wildest dreams, that a new book fills a definite longfelt want. This can be said of Dr. Alexander's mono-

graph.

Over a century ago, as he points out, Carson of Liverpool, argued that at least a part of the cure of pulmonary tuberculosis would finally be found in Forty years ago the semi-surgical procedure of artificial pneumothorax was begun, and in the last quarter century a number of surgical procedures have been developed, chiefly in the clinics of continental Europe by such men as Sauerbruch, Brauer, Saugman, Bull, Tuffier and Jacobæus. English speaking countries have been slower to adopt these methods, and although a few, notably our own Archibald, have helped to develop the operations and have added most usefully to the literature, yet the first complete treatise on the subject in English is that under review. A series of briefer articles by the same author have already appeared in the American Journal of Medical Sciences, and this fuller monograph was awarded, by the Phila-delphia Academy of Surgery, the Quinquennial Samuel D. Gross prize.

Naturally such a book should review the existing literature, sift it thoroughly, discuss it, and add to it. This is particularly well done. Books and papers to the number of five hundred are listed in the bibliography and digested in the various chapters.

Those who have not followed closely the more recent developments of thoracic surgery as applied to tuberculosis will note with interest the variety and history of the measures now employed. Thoracoplasty, now usually the two-stage paravertebral operation, collapses a diseased lung by removal of portions of all ribs; or if partial, of fewer ribs. In pneumolysis various padding substances, fat, muscle, or even paraffin are used extra-pleurally, but not very successfully so far, to exert pressure upon a localized area. The thoracic cavity can be lessened and the diseased lung pressed upon by the paralysis of a half diaphragm through phrenicotomy, which is even less done in this country than thorocoplasty, but seems likely to be very useful. Lung cavities may be drained, pleural adhesions cut, and tuberculous pleuritic effusions and empyemata dealt with by various methods. And time would fail to tell of all the combinations among these measures.

Pulmonary tuberculosis has so far been dealt with chiefly by medical measures and "the medical branch of pulmonary compression," pneumothorax. The surgical modes of pulmonary compression should find a use, Alexander thinks, in from three to five per cent of cases of pulmonary tuberculosis, and several higher estimates are quoted. But only three hundred thoracoplasties have so far been done in Canada and the United States. Even if they were indicated in only one per cent of cases, there must be, and indeed are, hundreds for whom these measures in skilled hands would save life. That the hands must be very specially skilled Alexander insists.

Between physicians dealing with tuberculosis and

thoracic surgeons there is only accord as to the value of the new surgical measures. There is naturally ground for argument as to where surgery should be called in, especially as between pneumothorax and thoracoplasty. Dr. Alexander's conclusion is that, "at present few physicians or surgeons would be so

rash as to advise thoracoplasty as the first step in compression therapy if they had reason to believe that entirely satisfactory pneumothorax could be produced." Dr. Alexander's well written, well illustrated, concise, yet ample treatise, covering the whole ground, and gathering up all the fragments of the literature to date, should give the thoracic surgeon between two book covers all the best available data in the English language. What is much more important, it should bring to the profession in general and to the physician and general practitioner in particular an idea of what is being done, can be done and should be done by surgery for pulmonary tuberculosis. It is not too much to say that it should introduce the newer chest surgery to the English-speaking profession. The writing of such a book while in bed and ill, makes a fine achievement still finer. D. A. STEWART

Abt's Pediatrics, Volume VII. Cloth, pp. 879, with 79 illustrations. W. B. Saunders Company.

The present volume of Abt's System is devoted to diseases of the nervous system, both organic and functional. The subject is introduced by a short but very useful article on the physiology of the nervous system in early life. This is followed by a full discussion of the infantile cerebral palsies in which Hamill has emphasized the importance of inflammation and hæmorrhage as causal factors in the socalled congenital maldevelopments of the brain. There is a chapter dealing with the surgery of the head and spine which may appear out of place in a system of medicine but will, in many instances, prove serviceable to the pædiatrician. In the article on Sydenham's chorea, the author points out the close relationship of this with rheumatic fever. The chapter on convulsions in infancy will be welcomed by those who recognize the difficulty of classifying this phenomenon in childhood. Schwartz has rightly laid stress on the importance of tetany as an underlying factor in many instances of infantile convulsions.

Under the title of neuroses are included such diverse conditions as epilepsy and peripheral nerve palsies. The last named seems hardly in place under such a heading. Epilepsy is discussed in a compre-hensive manner. One, however, would like to separhensive manner. ate once for all eclampsia infantum from this disease as it is undoubtedly a manifestation of infantile tetany. The modern views of hydrocephalus are summarized clearly by Blackfan. In the chapter on acute poliomyelitis there is a useful table of the spinal fluid findings in various meningeal conditions in children. The author has given in detail the recommendations for specific treatment and prevention which were decided on by the committee which reported the New York epidemic of 1916.

The latter part of the book includes the subject of psycho-pathology of childhood. This has been fully dealt with. It is important in view of the rapid development of this branch of pediatrics in recent years. The chapter on the sexual life of the child is Many readers will, however, feel that there tends to be undue emphasis placed on the importance of this phase of a child's life. There is a section on speech defects which should prove valuable to all who are interested in that difficult subject.

We feel that the comprehensive nature of the volume and the general excellence of the articles will white the grant and the library of any pediatrician, neurologist or general practitioner. S. G. Ross

This system comprizing seven large volumes of which this volume is the last-a system to which many members of the American Pediatric Society have contributed—must be regarded as an unusually excellent and up-to-date presentation of the subject of disease in childhood. It is a series of volumes, clearly written and well illustrated, in every way to be commended.

A. D. B.

A Clinical Index of Radium Therapy. A. E. Hayward Pinch, F.R.C.S. 164 pages. Harrison & Sons Ltd., 44 St. Martin's Lane, London, W.C.2, 1925.

The condensed results of treatment by radium at the London Radium Institute during the past thirteen and one-half years are presented in this small volume

of 160 pages.

The Institute was opened in August, 1911, and has administered 103,000 treatments to 14,500 patients. In the preface the statement is made that "no exravagant claims are put forward as to the amount of benefit likely to be derived from radium treatment and all the statements made in that connection have been most carefully considered and verified by reference to the case sheets."

One is impressed with the truth of this assertion throughout the book and undoubtedly its value is

greatly enhanced thereby.

Too much space is not occupied with physics or technical problems though the fundamentals of both are covered. The various types of applicators are described both for the use of radium salt and for radon (emanation). Exposure and dosage is adequately described and an important section devoted to the biological effects of radium upon the various normal bodily tissues and organs, together with a discussion of the dangers to workers with radio-active substances and the means of protection.

The balance of the book is devoted to a detailed

report of treatment of disease arranged according to the various systems of the body, viz:—Alimentary canal and its accessory glands; Diseases of the Thyroid, Thymus, Spleen and Lymphatic System; Diseases of the Breast; Radium in Gynæcology; in Urology; in

Dermatology, etc.

Space does not permit in a short review to detail the subjects treated and it is in any case sufficient to say that in this book one may find an answer to the question so often asked: What may radium be expected to accomplish in this particular disease? and that answer will represent a very large experience presented in a conservative manner. For this reason it should be carefully read by everyone who wishes to have a comprehensive knowledge of the scope of radium therapy without the necessity of wading through large and technical volumes. G. E. RICHARDS

Empyema Thoracis. Evarts A. Graham, A.B., M.D. 110 pages with charts. Price \$2.25. The C. V. Mosby Co., St. Louis. Canadian agents, The McAinsh & Co., Toronto, 1925.

Graham emphasizes the fact that in the pneumococcal type of pneumonic infection there is only a small area of lung involved, whereas in the streptococcal variety there is a diffuse, wide-spread involvement, resulting in decrease of vital capacity of the lung. This decrease in the vital capacity of the lung is the cause of the cyanosis and dyspnæa, and the mechanical factor, due to the presence of a large exudate, is a minor contributory cause to the respiratory difficulty. He has shown experimentally that in an open pneumothorax the lung on the affected side does not collapse without an effect on the apparently healthy lung. This is dependent upon the mechanical fact that the mediastinum is a mobile structure, and not a fixed partition. He emphasizes the fact that during expiration, the intrapleural pressure in open pneumo-thoraces actually exceeds that of the atmosphere, but both theoretically and by actual determin-

ation, the intra-pleural pressure becomes less than the atmospheric pressure on inspiration. An increase in pressure in one pleural cavity equal to 10 c.m. of water, establishes practically the same increase of pressure in the opposite pleural cavity. In any opening in a pleural cavity there is an increase of pressure in the opposite pleural cavity equal to that in the open one. In other words, if in the investigation an opening is made sufficiently large, the animal will pass through a state of marked dyspnæa and die of asphyxia within a few minutes. This is due to the fact that despite his maximum respiratory effort, he is unable to establish any or sufficient negative pressure to enable him to get sufficient air into the lungs to maintain life.

The author has as a result of these fundamental principles, worked out a ratio between the vital capacity of the chest and the tidal air on the one hand, and the area of intake through the epiglottis together with the intake of air through the pleural cavity. He has determined that an individual with normal vital capacity can withstand an opening of 51.5 square c.m.'s, or roughly 2 x 4.1 inches. It would obviously be as a corollary then, that an individual with a larger vital capacity could have more encroachment upon the lung function, and hence have a larger opening compatible with life. Conversely an individual with a smaller vital capacity would have an opening smaller than the above, because of the diminished volume of lung. The truth of the statement that the because of the effect on the supposedly healthy opposite lung, is emphasized by the statement, to which we all subscribe, that an adult human can have as much as 2000 c.c. of fluid in his chest without producing alarming dyspnæa, so long as he remains at Other disadvantages of open pneumo-thoraces are heat loss, infection, and circulatory disturbances.

The practical point to be learned from this investigation is that an open pneumo-thorax, in the presence of a lung involved by a disease which seriously interferes with its vital capacity, will so further cripple the respiratory intake as to cause death. He concludes from this that open pneumo-thorax, in the presence of wide-spread pulmonary involvement, is not only useless, but actually harmful, the harm being due to the fact that one interferes still more with an already seriously embarassed vital capacity. Thus he would conclude that any open drainage of the pleural cavity during an active pulmonic process is wrong, particularly when there are no adhesions uniting parietal and visceral pleura and thus fixing the mediastinum and preventing increased intrapleural pressure on the opposite side. He feels that the determining factor in causing death is the pneumonic, and not the pleural lesion.

When should aspiration of the pleura give way to open drainage? This is answered by stating that no open thoracotomy should be done while there is extensive involvement of the lung; that when one withdraws frank pus with the aspirating needle, there are almost invariably adhesions between visceral pleura fixing the mediastinum, thus preventing embarrassment of healthy lung, and one is then simply draining an abscess, without adding to the respiratory difficulty.

In the prevention of chronic empyema, I feel that,

In the prevention of chronic empyema, I feel that, while he has stated that insufficient drainage is the cause of a large percentage of such cases, he has not stressed the importance of adequate and properly placed drainage. The decortication with Dakin's fluid has been markedly stressed, being invaluable. While he condemns the collapsing types of operation, he also minimises the possibility of a functional result in the presence of a pneumo-thorax, so that from his statement, if Dakin's solution is not sufficient, he would hold out a very gloomy future regarding the individual with a closed pneumo-thorax. The timely reminder regarding the necessity for forced feeding

in view of the terrific nitrogen loss during the drainage of an empyema is very excellent, and is not generally appreciated in the post-operative care as it should be. Further, the fluid loss must be supplemented by free fluid intake.

In an addendum he has offered arguments combating those of his critics regarding the mobility of the mediastinum, and on the whole one must admit that he has well proven his case. While there are minor points in the physiology of respiration which may have to be modified, it is felt that on the whole an adoption of the principles enunciated will go a long way in the intelligent treatment of acute empyema, and consequent lowering of the mortality.

ROSCOE R. GRAHAM

Ontario Public School Health Book. Donald T. Fraser, M.B., and George D. Porter, M.B. The Copp Clark Co., Limited, Toronto. Authorized by the Minister of Education.

This small volume of 200 pages has been written with the purpose of conveying to school children a knowledge of the simpler facts in physiology and bacteriology; a knowledge which may impress on the developing mind of the child the importance of health habits and the necessity of isolation in the prevention

of disease.

This purpose has been well carried out. The work is written in a simple and interesting style; is well illustrated, and is interspersed with short stories which it is hoped will tend to impress the facts on the scholars' minds. Part I includes nineteen short chapters on various subjects connected with health habits, such as diet, exercise, rest and sleep, posture, and the avoidance of stimulants. In part II an attempt has been made to present in simple language the essentials of preventive medicine. Part III is devoted to first aid in accidents. The writers are to be congratulated upon their very happy presentation of the more important principles of healthy living. It is a book which we hope to see in the hands of every school child in Canada.

Ocular Therapeutics. A Manual for the Student and the Practitioner. Dr. Ernst Franke, translated by Clarence Loeb, A.M., M.D. 183 pages. Price \$3.50. The C. V. Mosby Co., St. Louis, 1925.

This is a well bound volume of 182 pages printed on excellent paper, and its subject matter is based on Dr. Franke's large clinical experience. In the words of the translator it is one of the very few books available to the English speaking oculist to which he can go for information regarding the treatment of his patients after the diagnosis is made and the remedies

known to him have proved inadequate.

The introduction emphasizes the importance of recognizing general disease in eye conditions, and gives brief suggestions as to special diets; the treatment of tuberculosis and syphilis, with methods of administration and dosage of tuberculin, diarsenal, mercury, iodine, and other less well known treatments, make up the first chapter; the second contains a description of sero-therapy and protein therapy, ray and light therapy, baths hot and cold, and medical The section on medical treatment, which is an alphabetical list of drugs with their uses in general medicine, does not contribute anything of value, but the other sections are excellent. teratment is next taken up, with special attention to massage, blood letting, heat and cold as local applications, diathermia and x-ray. Local medical therapy includes a well selected group of drugs, with the commoner indications for their use, and in the last section of the heat brief returns to the heat heat are a section. tion of the book brief notes are given on the treat-ment of most of the diseases of the eye arranged in anatomical groups.

The whole field has been well covered, and some older remedies have been brought forward and given their true value. The author has chosen to refrain from a critical discussion of the different methods of treatment, but we hope that in future editions this rule may not be so rigidly enforced. The work of the translator could scarcely oe improved upon, and a well-prepared index is a very real help. The book should be a valuable addition to the library of every practitioner. F. A. AYLESWORTH

An Intermediate Text-Book of Physiological Chemistry. C. J. V. Pettibone, Ph.D. Third edition. 404 pages. Price \$3.25. The C. V. Mosby Company, St. Louis, and McAinsh & Co., Limited, Toronto,

This book, as the author states in his preface, is an intermediate text-book of physiological chemistry. The elementary parts of the subject are dealt with very briefly; whereas the more advanced and intricate phases of physiological chemistry are considered at much greater length. The book consists of a theoretical and a practical part. The former is well arranged, and will give the student a very good general knowledge of biochemistry. With regard to the latter part it suffices to say that there are several laboratory manuals already on the market, which in our opinion contain more complete instructions for labor-

atory work.

After the brief introduction the author proceeds to a discussion of the applications of physical chemistry to physiological chemistry. Speaking generally, this chapter is very good. The author's ideas regarding osmosis and dialysis are, in our opinion rather The next few chapters deal adequately with obsolete. the chemistry of those substances which are of biological interest. This is followed by a discussion of the chemistry of foodstuffs and important animal tissues, including blood. The author then takes up in order the subjects of digestion, absorption, excretion and urine, and metabolism. The chapter on the last named subject is very good, and, though brief, gives the reader a very good knowledge of the essential facts regarding metabolism.

In the opinion of the reviewer, Dr. Pettibone's book may be recommended as a text to students of physiological chemistry; it is up-to-date, and it presents the subject-matter in a clear, concise and logical manner. W. H. FINNEY

Some Encouragement in Cancer Surgery. Turner, F.R.C.S. 75 pages, illustrated. Price 7s. 6d. net. John Wright & Sons, Ltd., Bristol. The Macmillan Co. of Canada, Toronto, 1925.

This beautifully published and profusely illustrated booklet lays before the medical profession the records of a number of surgically treated cancer cases, that have survived operation for a number of years, in the hope that encouragement will be given to the younger generation of surgeons to deal more vigorously and thoroughly with malignant disease.

The first half of the book describes in brief and

graphic fashion the history, treatment, immediate and late results of about twenty cases of cancer of the rectum and large bowel, each one being accompanied by a well produced illustration of the pathological specimen removed at operation.

Cases of malignant disease of the stomach, breast, mouth, bladder and kidneys, external genitals, eso-phagus and bone are more briefly cited in the latter

part.

Although the greatest emphasis is placed on the importance of thoroughness in dealing with cancer, the author's plea which he makes for the "launching of an intensive campaign on the early diagnosis and treatment of malignant disease of the mouth" might

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growth in all parts of the body.

The spirit which prompted the author to publish these records in the expectation of assisting other members of the profession to improve their results and prolong thereby the lives of persons afflicted by this almost hopeless disease, is deserving of the highest commendation. Improvement in results in the treatment of cases of cancer, of such areas as the rectum, stomach and mouth is taking place very slowly and is largely due to earlier recognition. That satisfactory results have been obtained by dealing more radically with later cases is unquestionably shown in this volume, a fact that should stimulate surgeons to persist in the present mode of attack until some better means of cure is discovered. At the same time, the public and profession should realize that early recognition gives the most hopeful outlook.

The book is brought to a close by a reproduction of "The Boyhood of Raleigh," by Sir John Millais, which, the author writes, "encourages me to hope that the experiences of the past related to-day, may fire them (my younger colleagues) with enthusiasm for the work of the future." E. STANLEY EYERSON

A Synopsis of Medicine. Henry Letheby Tidy, M.A., M.D., F.R.C.P. Third edition, revised and en-larged. 985 pages. John Wright & Sons, Ltd., Bristol. The Macmillan Co. of Canada, Toronto,

To have reached a reprinting of the third edition of any medical work in four years proves that there is a great field for its usefulness. First published in 1920, it followed the general arrangement of Osler's Medicine, and was a companion volume to Grove's Synopsis of Surgery, which had gained great popularity among medical students. The third edition has brought among medical students. The third edition has brought the information up to date, and has added several important articles, such as Professor H. MacLean's article on the tests of renal efficiency, and others on the physiology of digestion, and of the sensory and motor tracts. The information is given concisely, and where there is a difference of opinion the different views are stated clearly with the evidence for and against. There are few books in the English language that have covered the field so well, for this Synopsis is much more than the compendium, so commonly used by students on this side of the water. It is rather a book of ready reference, such as every physician wishes to keep close beside him for daily use F. A. CLARKSON

Treatment of Kidney Diseases and High Blood Pressure. Part 1, Practical Manual for Physicians and Patients. By Frederick M. Allen, M.D. 206 pages with index. Price \$3.00. The Physiatric Institute, Morristown, N.J., 1925.

The author, widely known through his published researches on diabetes and cardiorenal disease, presents a handbook for the practising physician which he may place in the hands of the patient as an aid in securing the co-operation necessary for successful treatment. A second volume is promised which will deal with the more scientific and fundamental aspect of the subject. Cardiorenal disease to-day consti-tutes one of the leading medical problems. Allen points out that the disturbances involved are essentially three, nitrogen retention, cedema and hypertension. He points out the important therapeutic influence of protein restriction and salt restriction. After dealing with etiology, prophylaxis, symptoms and prognosis, treatment both general and dietetic is clearly outlined. The chapter on laboratory procedures makes clear to the physician the uselessness in modern practice of the older tests for urea, urates, phosphates, sulphates and indican in the urine. The

valuable procedures in blood and urine analysis are given with the deductions to be made from them. The handbook will prove of great value to the physician who wishes a working knowledge of modern methods in study of renalvascular disease. J. H. ELLIOTT

Manual of Medical Jurisprudence and Toxicology. W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E. F.R.S.E. Lecturer on medical jurisprudence and public health, School of Medicine, Royal College of Surgeons, Edinburgh. Fifth edition 436 pages, with frontispiece in colour and 26 illustrations. Macmillan Co. of Canada, Toronto, 1925.

This is a student's manual. That it has now reached a fifth edition is evidence of its popularity as a short text book. An endeavour has been made to include in it all that the undergraduate in medicine should know of medical jurisprudence. The chapter on criminal procedure refers only to the British Isles and is not applicable to Canada. The same comment may be made regarding the committment of inebriates and the insane, and the references to the dangerous drugs acts and the sale of poisons. The popularity of this manual is doubtless due to its completeness. Some paragraphs and sections are incomplete and should be extended or omitted, such as that dealing with treatment of drug addictions. J. H. ELLIOTT

Handbook of Bacteriology. By Joseph W. Bigger, M.D., F.R.C.P.I., D.P.H. xvi + 414, 5 coloured plates, 66 illustrations. Price 12s. 6d. net. Bailliere, Tindall & Cox, Covent Garden, London, 1925.

This book has been written to meet the demands of students for a shorter text-book on Bacteriology. Professor Bigger's aim has been to present the practical aspect of the subject in such a way that the reader will readily be able to find all the more important facts relating to bacteria as they affect man. The first half of the book is devoted to a con-

The first half of the book is devoted to a consideration of the apparatus and methods of procedure in the study and identification of pathogenic microorganisms. In addition, subjects of a more general nature are dealt with, such as the bacteriology of water and milk, antiseptics and disinfectants, and various aspects of immunology. The second half of the book comprises a detailed description of human pathogens including certain protozoa and fungi.

The introductory chapter is not written in such way as to give a clear conception of either the rôle or the biochemical activities of microorganisms. The technique of examining and staining bacteria is excellent. There are many suggestions which are useful in this and the following chapters on sterilization, the preparation of culture media, and the making of cultures. Although the author points out the futility of the accurate counting of bacterial suspensions used as vaccines, yet a good deal of space is devoted to a description of methods of counting. Less space might be allotted to such topics as the determination of the opsonic index, bactericidal power of serum, Rideal-Walker technique. This is however, a matter of individual choice. The introduction to immunity is well and clearly presented as is the chapter on anaphylaxis, hypersensitiveness and allergy. The incorporation of the Ehrlich's side-chain theory in such a book as this is undesirable. It were better left out altogether, or merely referred to as being of historical interest.

The second part of the book describing patho-genic microorganisms is well carried out and should serve as an excellent reference for student and phy-

Professor Bigger has written a short book which should commend itself to those who desire a short, concise reference book and a simple compendium of bacteriological technique. DONALD T. FRASER



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The Pathology of Tumours. E. H. Kettle, M.D., B.S. Second edition 284 pages, 159 illustrations. Price Second edition 284 pages, 159 illustrations. Price 12s. 6d. H. K. Lewis Co., 136 Gower St., London W.C.1, 1925.

This is a book of 285 pages, nicely bound, and dealing with the subject of tumours. As stated in the preface it has been planned—"To provide a manual for students, which should contain the generally accepted teaching on the pathology of tumours without the mass of detail proper in a more ambitious work of reference." It has, for convenience, been divided into three parts as follows:-

The first part deals with the general biology of tumours and takes up among others such topics as structure, growth, malignancy, etiology, and treatment of tumours. This part also includes a very satisfac-tory summary of the recent work on the experimental

study of cancer.

The second part deals with the general pathology of tumours. Powell White's and Adami's classifications of tumours are given and discussed, but for the purposes of the book he uses what he calls the older nomenclature. The tumours are then taken up in order according to this classification and their gross and microscopical appearances given. Reference is made to the common sites for such growths. The headings are in heavy type—making it very handy for reference work. The author's discussion of the endotheliomata, while rather extensive considering their importance, fails to mention Ewing's work on endotheliomas of the bones.

The third part of the book is devoted to the special pathology of tumours. Here a discussion of the tumours occurring in the various organs of the body, following this a very brief summary of the tumours liable to occur in such situations is given and

their relative importance noted.

There has been no attempt at originality in the presentation of the subject, rather a desire to avoid contentious subjects and to present the most generally accepted ideas of to-day. The subject matter is adequately illustrated with splendid drawings and it should prove a very acceptable and useful book for students and practitioners. W. T. ROBINSON

Dyspepsia. Its Varieties and Treatment. Fenwick, M.D., B.S. (Lond.) Second edition, revised. 155 pages, illustrated. Price cloth \$6.00 net. Philadelphia and London, W. B. Saunders Co., 1925.

This is the second edition of Dr. Fenwick's book, an interval of some years having elapsed between the two editions. He feels that secretory disorders of the stomach have increased in frequency since the war; and is also confirmed in his opinion that gastroenteritis in infants has an important influence on diges-

tion in later life.

It is not easy to discuss dyspepsia as a separate entity, but Dr. Fenwick has managed his analysis with considerable success. This cannot be considered as a book of reference but it will be found to possess a certain value in the breadth of view it takes of gastro-intestinal disorders. From this point of view it will be read with interest by all who are confronted by the multitudinous complaints which in so many cases receive little more than the label H. E. MACDERMOT of dyspepsia.

The Extra Pharmacopæia. Vol. II. W. Harrison Martindale, Ph.D., Ph. Ch., F.C.S., and W. Wynn Westcott, M.B., D.P.H. Enghteenth edition, 728 pages. Price 20s. net. H. K. Lewis & Co., 28 Gower Place, London, W.C.1., 1925.

It is not easy to make a fresh comment on a book which has passed through eighteen editions and is showing every sign of being likely to pass through many more. In this eighteenth edition of Vol. II of the Extra Pharmacopæia much has been added, and apparently all the latest developments in clinical methods, tests, technique of examinations, etc. are dealt with.

One might question the value of some rather abbreviated criticisms on certain points. In speaking of tests of renal function, for example, a brief extract is given of one writer's sweeping condemnations in regard to the use of the urea content of the blood as a guide to prognosis, or as being commen-surate with the severity of the symptoms. Such statements need a great deal more expansion than can be allowed them in works of this compass.

Is is with regret that we note the death of Dr. Westcott while this edition was still in the press.

H. E. MACDERMOT

The Ophthalmic Year Book. Vol. XXI. Edited by William H. Crisp. 323 pages, 10 illustrations. Price Published by The Ophthalmic Publishing Co., Chicago, 1925.

The Ophthalmic Year Book is primarily intended for the use of ophthalmologists, but it also contains references of interest to physicists. In this particular volume, No. XXI, 1925, there are good bibliographies of recent work on physiological optics; on colour vision, and on the history of ophthalmic lenses. In addition to the bibliographies there are short abstracts of published papers, the whole series of references being a very valuable collection for physicists inter-ested in this field of work.

The major part of the volume, however, is of interest to the medical scientist. H. A. McTaggart

Preventive Medicine. Mark F. Boyd, M.D., M.S., C.P.H. 429 pages, illustrated. Price \$4.50. Saunders Co., London and Philadelphia. McAinsh & Co., Toronto, 1925.

In this work the author has attempted to cover a very wide field in a way that should be helpful not only to the undergraduate in medicine, but to the general practitioner, and in the writer's mind, to the layman.

One can commend unhesitatingly the chapter on "Excreta Disposal" and "Production and Inspection of Milk," to those living in rural districts, for reasons that need not be stressed. One had hoped to see some suggestions to railway companies for the disposal of the excreta of their passengers, for replacing the open closet which prevails at present and which is certainly not in accord with modern methods of sanita-

The first four chapters are rather badly arranged. For example, Chapter II is designated "Sources of Infection," but begins with definitions of various words,—endemics, epidemics, on pages 25 and 26, and is concluded by an explanation of "Epidemics" on page 31-35. These might more properly have been grouped in a section by themselves and the topic "Sources of Infection" have been left to be dealt with in a more compact way in a separate section. Again, on page 40, under "Contact Transference," it seems it would have been wiser under the subheading "Mouth Spray" (a poor term), to have given at once the diseases spread in this manner instead of waiting for a separate chapter on page 60.

The author has done well to stress the importance of diet and its direct relation to disease; also the "Diseases arising from the Puerperal State," with the appalling and, to a large extent, needless loss of mothers. If no other section of the book is read by the layman, it is to be hoped that this one will be.

The book can be highly commended to those interested, (and who should not be?), in preventive medicine.

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A Manual of Pharmacology. Walter E. Dixon, M.A., M.D., B.S., B.Sc., D.P.H., F.R.S. Sixth edition. 478 pages, 11 plates. Edward Arnold & Co., London, 1925.

Professor Dixon's Manual of Pharmacology is so well known as to require no introduction to Canadian medical men, especially as it is one of the standard text-books on the subject in the English language. The arrangement of the sixth edition is practically the same as its predecessors; it has, however, according to the author, been subject to a complete revision, and several new substances of pharmacological or therapeutical interest have been added. Amongst these may be mentioned insulin, carbon tetrachloride, and certain dye compounds, which additions have slightly enlarged the volume as compared with the last edition.

Professor Dixon has a very clear and concise style of writing, and succeeds in conveying an astonishing amount of information without becoming in the least tedious, or involved. Where the subject is one of controversial nature the author usually takes up a definite point of view, though in the much debated question as to whether alcohol primarily stimulates, or not, he assumes a very impartial attitude.

The volume is most attractively printed and contains a large number of illustrations and tracings, most of which have been obtained from experiments conducted in the author's own laboratory. This adds largely to the definite individuality of the book which is certainly not one of its least attractions.

The use of the English system of weights is at present inevitable owing to the large number of men who have been taught it, and no other; that the ultimate use of the metric system will become general, is also beyond question; it is therefore to be deplored that first place be given to the archaic English dosage by such an eminent teacher as Professor Dixon, since this will tend to prolong the unhappy transition period which is now taking place. The same conservative spirit is also shown in the number of preparations mentioned, many of which could be entirely dispensed with, nobody being the loser. We have, however, no hesitation in recommending this book to those in need of a first-class text on pharmacology it being suitable alike for the medical student and the general practitioner.

D. S. Gibbs

Physiological Chemistry. Albert P. Mathews, Ph.D. Fourth edition. Illustrated, 1233 pages. Price \$6.50. William Wood and Company, 51 Fifth Avenue, New York, 1925.

This book is already so well known that comment upon it is scarcely necessary. The arrangement of material is probably as logical as can be achieved. Beginning with the general properties of living matter, the chemistry of the glucides, the lipins and the proteins, the foundation is laid for a consideration of the chemistry of animal heat, of digestion, of blood, or brain, or muscle, of connective tissue and of certain of the internal secretions. The chapter on coagulation of the blood is particularly good. It presents clearly and concisely what appears to be the most rational idea yet evolved in explanation of this important but baffling process. One may regret the omission of reference to work on this subject that might well have a place in the bibliography, but taken in its entirety this is a very satisfactory chapter.

Speaking of the bibliography reminds the reviewer to express a preference for a closer linking of reference with text than is customary in this volume. This seems the most serious criticism of the book. The list of references as given at the end of a chapter is not arranged alphabetically, chronologically or textually. This must greatly reduce the value of the book to many readers. One might also take exception to the

treatment of the excretions of the body. Chapter XVIII is so entitled, but it deals only with the urine. This would not matter, apart from a slight feeling of annoyance at being misled, if the excretions of other parts were adequately treated under their respective headings and this chapter made direct reference to the place where each was to be found.

The third and final section is devoted to practical work and methods. In this part the author gives a few words of sound and helpful advice to the student which apply equally well to laboratory work in any subject. If the undergraduate would approach his practical work as Professor Mathews asks him to, many of the problems which confront us as teachers would disappear. The style in which the book is written is attractive. It is simple and lucid. Some may object that it is almost too simple and that explanations are introduced with which it might be assumed the reader is familiar. However, if one is correct in believing that the author was writing particularly for the beginner in biochemistry, such simplicity becomes desirable and makes for quicker and easier comprehension.

A. W. Downs

Physical Chemistry in Biology and Medicine. By J. F. McClendon, Ph.D. and Grace Medes, Ph.D. Octavo, pp. 425, illustrated. Price \$4.50. W. B. Saunders Co., Philadelphia, and McAinsh & Co., Toronto, 1925.

This book has been written with the object of presenting much of the evidence of the applications of physico-chemical methods and theory in the realm of biological study. It is divided into two unequal parts. The first, called physico-chemical, comprises a discussion of a few of the fundamental concepts of mass and volume, colloidal state, intermolecular forces, ionic and molecular equilibria, and hydrogen ion concentration. The second, called physiological, comprises sections on radiant energy, thermochemistry, colloids, osmosis, permeability and surface tension.

A strict adherence to the above division of the exposition is not maintained; in part one are given many illustrations in biology of the theory discussed. The value of this section in the reviewer's opinion lies chiefly in these illustrations as the discussion of pure principles is so brief it may prove difficult of comprehension to anyone not previously familiar with physical chemistry. The second part of the book is a valuable contribution on account of its wealth of illustration garnered from the literature of experimental biology. Medical inquirers will find occasional explanations of pathological conditions and the rationale of treatment. The use of ultra-violet and x-radiations in therapy, the fundamental nature of the basal metabolic rate, the alkaline reserve, anesthesia, edema and urinary elimination are instances.

The bibliography concluding each chapter is very extensive for a book of this size and will appeal to the research worker.

E. GORDON YOUNG

Sex at Choice. Mrs. Monteith Erskine. 154 pages. Price \$2.50. The Musson Book Company, Toronto, 1925.

The authoress claims for every woman the ability to control the sex of her offspring. The claim is based on a theory of the production of ova capable only of development as females by the left ovary, and of males by the right. The left ovary is said to always act first. Avoidance of the ten days after each period is said to prevent a male conception. Avoidance of ten days before and the three days after is said to prevent female issue. The extent of the authoress' knowledge of physiological and pathological processes may be judged by the attributing of vascular nævi and "big black moles all over the face especially on the left side" to conception during the actual menstrual period.

L. H. McKim